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TABLES

OF THE

FOUR GREAT SATELLITES

OF

JUPITER

University of Durham Observatory

TABLES

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FOUR GREAT SATELLITES

OF

JUPITER

BY

R A SAMPSON, D Sc , F R S ,

OFESS R OF AST M

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PREFACE

THE *Tables of the Four Great Satellites of Jupiter* have been calculated from formulæ and precepts which I supplied by Mr F C H Carpenter B Sc Observer at Durham Observatory and Mr W F Doak M A Assistant at H M *Nautical Almanac* Office Mr Carpenter taking the major part The Tables were written in MS and verified for the most part by myself the verification was made wherever possible by reconstructing the entries of each Table from its difference columns The type was set up by Messrs Neill & Co Ltd with extreme accuracy and the proofs were read with the MS independently by Mr Carpenter and myself The cost of computation as far as this outran established duty at the Observatory was provided from the Government Grant for Scientific Investigations The cost of publication is borne by the Observatory

R A SAMPSON

UNIVERSITY OF DURHAM OBSERVATORY
1910 *August*

CONTENTS

INTRODUCTION

Tables of the Four Great Satellites of Jupiter

Errata

An erroneous formula has been used for the phenomena of Shadows and Transits (*Mon Not Roy Ast Soc* 1910 Dec) The following directions will correct it The formulæ for Eclipses and Occultations are already correct and are not altered in any respect

Introduction p xix for the expressions for the *Reductions to Middle* read

Satellite I

No	Argument	Notation of Tables	Eclipse Sh dow	Occultation	Transit
			d	d	d
1	sin $2h$	K	−0 000399	*ib*	*ib*
2	sin $(h+h)$	P	− 000007	*ib*	*ib*
3	sin $(h+h)$	Q	− 000003	*ib*	*ib*
4	sin $2d$	A	+ 000035	*ib*	*ib*
5	sin H cos h	γ K		− 000065	+ 000065

Satellite II

No	Argument	Notation of Tables	Eclipse Shadow	Occultation	Transit
			d	d	d
1	sin $2h$	Q	−0 000810	*ib*	*ib*
2	sin $(h+h)$	R	− 000264	*ib*	*ib*
3	sin $(h+h)$	S	− 000016	*ib*	*ib*
4	sin $(h+h_4)$	T	− 000004	*ib*	*ib*
5	sin $2h$	U	− 000021	*ib*	*ib*
6	sin $(\Psi-\omega)$	P	+ 000019	*ib*	*ib*
7	sin $2d_3$	A	+ 000061	*ib*	*ib*
8	sin H cos h	γ Q		− 000133	+ 000133

Satellite III

No	Argument	Notation of Tables	Eclipse Shadow	Occultation	Transit
			d	d	d
1	sin $2h$	O	−0 001567	*ib*	*ib*
2	sin $(h+h)$	P	+ 000019	*ib*	*ib*
3	sin $(h+h)$	Q	− 000199	*ib*	*ib*
4	sin $(h+h)$	R	− 000039	*ib*	*ib*
5	sin $2h_3$	S	− 000008	*ib*	*ib*
6	sin $(\Psi-\omega)$	N	+ 000016	*ib*	*ib*
7	sin $(\Psi-\omega_4)$		+ 000003	*ib*	*ib*
8	sin g	D	+ 000008	*ib*	*ib*
9	sin H cos h	γ O		− 000264	+ 000264

SATELLITE IV

No.	Argument	Notation of Tables	Eclipse, Shadow	Occultation	Transit
			d	d	d
1	$\sin 2h_0'''$	J	$-0{\cdot}002834$	*ib.*	*ib.*
2	$\sin (h_0'''+h_3''')$	L	$+\ {\cdot}000068$	*ib.*	*ib.*
3	$\sin (h_0'''+h_4''')$	K	$-\ {\cdot}000627$	*ib.*	*ib.*
4	$\sin 2h_4'''$	M	$-\ {\cdot}000035$	*ib.*	*ib.*
5	$\sin (\Psi-\omega_4)$	I	$+\ {\cdot}000050$	*ib.*	*ib.*
6	$\sin (\Psi-\omega_3)$	..	$-\ {\cdot}000006$	*ib.*	*ib.*
7	$\sin g_4'''$	E	$+\ {\cdot}000028$	*ib.*	*ib.*
8	$\sin \mathrm{H}_1 \cos h_0'''$	γ, J	..	$-\ {\cdot}000537$	$+\ {\cdot}000537$

P. xxi. In the expressions for *Semiduration*, delete the terms :—

Satellite I, (8) ; Satellite III, (9) ;
Satellite II, (9) ; Satellite IV, (9), (15).

In the *Tables of the Semiduration*,

Satellite I : Table XLI, cancel column 3 and employ column 1 for all phenomena ;
Satellite II : cancel Table LV and employ Table LIV for all phenomena ;
Satellite III : cancel Table LV and employ Table LIV for all phenomena ;
Satellite IV : cancel Tables XLIV, XLVIII and employ Tables XLIII, XLVII respectively for all phenomena.

In the *Tables of the Reduction to Middle*, cancel the Tables printed and employ those given below. These require no additional explanation except to point out that the constant portion of the Equation of Light (*Introduction*, p. xxiv) is now applied to one of the minor Tables in place of to the leading Table for each Satellite.

The following errata may also be noted :

Introduction, p. xv : delete ° under *Coefficient of Cosine.*
p. 178, Table XXV, with argument **165**, for 1363 read 1263.
p. 208, column 5, for ·00000 read 0·0000 and so throughout the column.

SATELLITE I

Tables of the Phenomena

XLV | Reduction to Middle | Argument K

		3			3			3			3
K	Ecl Oc Sh T	Δ	K	Ecl Oc Sh Tr	Δ	K	Ecl Oc Sh T	Δ	K	Ecl Oc Sh Tr	Δ
	d			d		d	d		d	d	
0 00	− 00 070	− 29	0 50	+ 000089	+ 6	1 00	− 000362	− 19	1 50	+ 000307	+ 10
01	98	8	51	115	6	01	381	18	51	316	8
02	1 7	29	52	14	4	02	398	17	52	3 2	6
03	155	8	53	163	23	03	414	15	53	3 6	4
04	18	7	54	186	2	04	428	13	54	329	+ 2
05	209	7	55	07	1	05	438	11	55	329	0
0 06	− 000235	− 26	0 56	+ 000 7	+ 19	1 06	− 000448	− 10	1 56	+ 000328	− 2
07	60	5	57	245	18	07	457	8	57	3 6	5
08	85	25	58	26	16	08	463	6	58	320	7
09	309	23	59	76	14	09	467	3	59	31	9
10	331	1	60	289	13	10	469	− 2	60	303	10
0 11	− 000351	− 2	0 61	+ 000301	+ 11	1 11	− 000469	0	1 61	+ 00029	− 12
12	371	19	62	311	9	12	467	+ 3	62	279	14
13	389	17	63	319	7	13	464	5	63	64	16
14	405	16	64	3 4	4	14	458	7	64	247	18
15	4 0	14	65	327	3	15	451	9	65	9	19
0 16	− 000433	− 12	0 66	+ 00329	+ 1	1 16	− 00044	+ 11	1 66	+ 000210	− 1
17	443	10	67	3 9	− 1	17	4 8	13	67	189	2
18	45	9	68	3 7	3	18	416	14	68	167	3
19	460	7	69	3 3	6	19	401	16	69	143	5
20	465	4	70	316	8	20	384	18	70	119	26
0 21	− 000468	− 2	0 71	+ 000308	− 9	1 21	− 000365	+ 20	1 71	+ 0 0093	− 7
22	469	− 1	72	98	11	22	346	21	72	66	27
23	468	+ 1	73	286	13	23	325		73	40	28
24	466	4	74	7	15	24	3 1	24	74	+ 1	28
25	461	6	75	256	17	25	277	25	75	− 16	28
0 26	− 000454	+ 8	0 76	+ 000239	− 18	1 26	− 000 53	+ 26	1 76	− 000044	− 28
27	446	10	77	220	0	27	27	27	77	7	29
28	435	1	78	00	21	28	00	7	78	101	29
29	4 3	13	79	178		29	174	28	79	129	9
30	409	15	80	156	24	30	146	28	80	156	8
0 31	− 000393	+ 17	0 81	+ 00013	− 5	1 31	− 000118	+ 29	1 81	− 000184	− 8
32	375	19	82	107	26	32	89	29	82	21	7
33	356	20	83	81	27	33	61	29	83	38	26
34	336	21	84	54	7	34	33	8	84	263	5
35	314	23	85	+ 27	28	35	− 5	28	85	287	24
0 36	− 000 90	+ 24	0 86	− 00 001	− 8	1 36	+ 0000 3	+ 28	1 86	− 000310	3
37	266	25	87	29	28	37	51	8	87	33	2
38	241	26	88	57	28	38	77	27	88	353	20
39	215	27	89	85	29	39	1 3	26	89	37	19
40	188	7	90	114	29	40	129	25	90	390	17
0 41	− 0 0161	+ 28	0 91	− 000142	− 28	1 41	+ 000152	+ 24	1 91	− 000406	− 16
42	133	28	92	169	27	42	176	23	92	4 1	14
43	105	29	93	197	28	43	197	2	93	434	12
44	76	9	94	24	26	44	18	20	94	444	10
45	48	28	95	249	25	45	37	19	95	453	9
0 46	− 0000 0	+ 28	0 96	− 000 74	− 5	1 46	+ 000255	+ 17	1 96	− 000461	− 7
47	+ 8	8	97	298	23	47	70	15	97	465	4
48	36	28	98	320	2	48	283	14	98	468	2
49	63	7	99	342	1	49	296	12	99	469	− 1
0 50	+ 89	+ 6	1 00	− 362	− 19	1 50	+ 307	+ 10	2 00	− 000468	+ 2

Appli d C t t oooo Th E t y m t b ppl m t d by th Eq ti f T bl XLVI L Tl h l m t b t d by ddi g t
it lf it p d t by th V i t d w f m T bl XXV XXIX Γ Sl d w d T it it m t l b t d f J pit Pl by T bl LI

SATELLITE I

Tables of the Phenomena

XLVI — Equations of the Reduction — Oc., Tr.

γ \ K	$0^{d}\cdot0$	$0^{d}\cdot1$	$0^{d}\cdot2$	$0^{d}\cdot3$	$0^{d}\cdot4$	$0^{d}\cdot5$	$0^{d}\cdot6$	$0^{d}\cdot7$	$0^{d}\cdot8$	$0^{d}\cdot9$	$1^{d}\cdot0$	$1^{d}\cdot1$	$1^{d}\cdot2$	$1^{d}\cdot3$	$1^{d}\cdot4$	$1^{d}\cdot5$	$1^{d}\cdot6$	$1^{d}\cdot7$	$1^{d}\cdot8$	$1^{d}\cdot9$	$2^{d}\cdot0$
d																					
0	± 3	± 3	± 2	± 1	0	∓ 1	∓ 2	∓ 2	∓ 3	∓ 3	∓ 3	∓ 2	∓ 1	0	± 1	± 2	± 2	± 3	± 3	± 3	± 2
20	±25	23	19	12	± 4	∓ 5	13	19	23	25	23	18	11	∓ 2	± 6	14	20	24	24	22	±17
40	±43	41	33	21	± 7	∓ 9	23	34	41	43	40	31	19	∓ 4	±11	25	36	42	43	39	±30
60	±57	54	43	28	± 9	∓12	30	45	55	57	52	41	25	∓ 5	±15	33	47	56	57	51	±39
80	±64	60	49	31	±10	∓13	34	51	61	64	59	46	28	∓ 6	±17	37	53	62	64	57	±44
100	±64	60	48	31	±10	∓13	34	51	61	63	58	46	28	∓ 6	±16	37	53	62	63	57	±43
120	±56	52	42	27	± 8	∓11	30	44	53	56	51	40	24	∓ 5	±14	32	46	54	55	50	±38
140	±41	39	31	20	± 6	∓ 8	22	33	39	41	38	30	18	∓ 4	±11	24	34	40	41	37	±28
160	±22	±21	±17	±11	± 3	∓ 4	∓12	∓17	∓21	∓22	∓20	∓16	∓10	∓ 2	± 6	±13	±18	±21	±22	±20	±15
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	∓22	∓20	∓16	∓11	∓ 3	± 4	±12	±17	±21	±22	±20	±16	± 9	± 2	∓ 6	∓12	∓18	∓21	∓22	∓19	∓15
220	∓41	39	31	20	∓ 6	± 8	22	33	39	41	38	30	18	± 4	∓11	24	34	40	41	37	∓28
240	∓56	52	42	27	∓ 8	±11	30	44	53	56	51	40	24	± 5	∓14	32	46	54	55	50	∓38
260	∓64	60	48	31	∓10	±13	34	51	61	64	58	46	28	± 6	∓16	37	53	62	63	57	∓43
280	∓64	60	49	31	∓10	±13	34	51	61	64	59	46	28	± 6	∓17	37	54	63	65	58	∓44
300	∓57	54	43	28	∓ 9	±12	30	45	55	57	53	41	25	± 5	∓15	33	47	56	57	51	∓39
320	∓44	41	33	21	∓ 7	± 9	23	35	42	43	40	31	19	± 4	∓11	25	36	42	43	39	∓30
340	∓25	23	19	12	∓ 4	± 5	13	20	24	25	23	18	11	± 2	∓ 6	14	20	24	25	22	∓17
360	∓ 3	∓ 3	∓ 2	∓ 1	0	± 1	± 2	± 2	± 3	± 3	± 3	± 2	± 1	0	∓ 1	∓ 2	∓ 3	∓ 3	∓ 3	∓ 3	∓ 2
380	±19	±18	±14	± 9	± 3	∓ 4	∓10	∓15	∓18	∓19	∓17	∓14	∓ 8	∓ 2	± 5	±11	±16	±18	±19	±17	±13
400	±39	±36	±29	±19	± 6	∓ 8	∓21	∓31	∓37	∓39	∓36	∓28	∓17	∓ 4	±10	±22	±32	±38	±39	±35	±26

The unit in this Table is $0^{d}\cdot000001$. No Constant has been added. The upper sign applies for Occultations, the lower for Transits.

XLVIII

1	2	1	2
A	Ecl., Oc. Sh., Tr.	A	Ecl., Oc. Sh., Tr.
d	d	d	d
0·0	+ ·000035	2·0	+ ·000060
·1	46	·1	66
·2	57	·2	68
·3	64	·3	66
·4	68	·4	60
·5	67	·5	51
0·6	+ ·000063	2·6	+ ·000040
·7	55	·7	28
·8	44	·8	17
·9	32	·9	8
1·0	21	3·0	3
1·1	+ ·000011	3·1	+ ·000001
·2	4	·2	4
·3	1	·3	10
·4	3	·4	20
·5	8	·5	31
1·6	+ ·000016	3·6	+ ·000043
·7	27	·7	54
·8	39	·8	63
·9	50	·9	67
2·0	+ ·000060	4·0	+ ·000068

Added Constant: $+0^{d}\cdot000035$.

XLIX

1	2
P	Ecl., Oc. Sh., Tr.
d	d
0·00	+ ·000010
·05	8
·10	5
·15	4
·20	3
·25	3
0·30	+ ·000004
·35	6
·40	8
·45	10
·50	13
0·55	+ ·000015
·60	17
·65	18
·70	17
·75	16
0·80	+ ·000014
·85	12
·90	9
·95	7
1·00	+ ·000004

Added Constant: $+0^{d}\cdot000010$.

L

1	2	3
Ecl., Oc.	Q	Sh., Tr.
d	d	d
+ ·000041	0·0	+ ·000009
39	·1	7
38	·2	6
38	·3	6
40	·4	8
42	·5	10
+ ·000044	0·6	+ ·000012
44	·7	12
43	·8	11
41	·9	9
+ ·000039	1·0	+ ·000007

Added Constant: $+0^{d}\cdot000025$.
A term of Equation of Light is included.

SATELLITE II

Tables of the Phenomena

LVII

Reduction to Middle

Argument Q

Q	Ecl Sh / Oc Tr	Δ³ 0d 01	Q	Ecl Sh / Oc T	Δ³ 0d 01	Q	Ecl Sh / Oc Tr	Δ³ 0d 01	Q	Ecl Sh / O Ir	Δ³ 0d 01
d	d						d				
0 00	−0 0005 0	− 29	1 00	− 000187	+ 26	2 00	−0 001077	− 0	3 00	+0 00025	+ 11
02	557	28	02	135	26	02	1117	18	02	7	9
04	614	29	04	84	5	04	1152	17	04	87	7
06	671	28	06	− 36	24	06	1184	15	06	99	5
08	7 6	27	08	+ 9	2	08	1 13	13	08	305	2
10	780	27	10	5	21	10	1 38	1	10	308	+ 1
0 12	−0 000834	− 26	1 12	+0 000093	+ 0	2 12	−0 001 61	− 1	3 12	+0 000309	− 1
14	885	25	14	131	18	14	1 79	8	14	304	3
16	934	4	16	165	16	16	1293	6	16	296	5
18	981	3	18	196	15	18	130	4	18	284	7
20	10 6	2	20	223	13	20	1308	− 2	20	267	10
0 22	−0 001069	− 21	1 22	+0 000 47	+ 11	2 22	−0 00131	0	3 22	+0 000246	− 1
24	1109	19	24	268	9	24	1308	+ 2	24	21	13
26	1145	17	26	284	7	26	1301	4	26	194	15
28	1177	16	28	97	5	28	1 91	6	28	163	16
30	1207	14	30	304	3	30	1 77	8	30	1 9	18
0 32	−0 001233	− 12	1 32	+0 000308	+ 1	2 32	−0 001260	+ 10	3 32	+0 000092	− 20
34	1 56	11	34	309	− 1	34	1237	1	34	51	21
36	1275	9	36	305	3	36	1211	14	36	+ 7	23
38	1290	6	38	98	5	38	1182	15	38	− 40	4
40	1300	4	40	287	7	40	1150	17	40	88	25
0 42	−0 001307	− 2	1 42	+0 000271	− 9	2 42	−0 001114	+ 19	3 42	−0 000138	− 5
44	1310	− 1	44	251	11	44	1075	20	44	189	26
46	1309	+ 2	46	7	13	46	1034	1	46	43	27
48	1303	4	48	200	14	48	989	3	48	297	28
50	1294	6	50	170	16	50	94	24	50	354	28
0 52	−0 001281	+ 8	1 52	+0 000137	− 18	2 52	−0 000894	+ 25	3 52	−0 00041	− 29
54	1 64	10	54	100	19	54	843	26	54	468	28
56	1 42	12	56	60	1	56	789	7	56	5 5	8
58	1 17	13	58	+ 17	2	58	735	7	58	581	28
60	1189	15	60	− 9	24	60	680	8	60	639	9
0 62	− 001157	+ 16	1 62	0 000077	− 25	2 62	−0 0006 4	+ 28	3 62	−0 000695	− 8
64	11 2	18	64	127	25	64	568	28	64	751	7
66	1084	20	66	178	6	66	510	29	66	8 4	26
68	1043	1	68	31	27	68	452	29	68	856	6
70	999	23	70	85	28	70	396	28	70	907	25
0 72	−0 000953	+ 24	1 72	−0 00034	− 28	2 72	−0 000339	+ 28	3 72	−0 000956	4
74	905	25	74	399	9	74	84	28	74	100	
76	854	26	76	456	28	76	8	7	76	1045	21
78	801	27	78	513	8	78	176	26	78	1087	20
80	747	27	80	569	8	80	124	26	80	1126	18
0 82	−0 000692	+ 28	1 82	−0 000626	− 29	2 82	−0 000073	+ 25	3 82	−0 001160	− 16
84	636	28	84	683	8	84	− 25	23	84	1191	15
86	580	8	86	739	27	86	+ 19	22	86	1219	13
88	523	29	88	79	7	88	61	1	88	1244	12
90	465	29	90	845	26	90	10	19	90	1266	10
0 92	−0 00 408	+ 28	1 92	−0 000896	− 25	2 92	+0 000139	+ 17	3 92	−0 001 83	− 7
94	351	28	94	945	24	94	172	16	94	1295	5
96	96	28	96	992	23	96	03	14	96	1304	3
98	240	27	98	1036	21	98	29	12	98	1309	− 2
1 00	−0 000187	+ 26	2 00	−0 001077	− 20	3 00	+0 000 52	+ 11	4 00	−0 001311	0

Appll d Co t t 000500 Th E t ym tb ppl m t d by Eq tl f m T bl LVIII LXV Th wh l m tb ted by ddl g t it its
p d t by th V rl tl d wn f m T bl XXXIII XXXVI F Sh d w d T it it m t ls b t d f J plt Ph by T bl LXVI

SATELLITE II

Tables of the Phenomena

Equations of the Reduction

LVIII

1	2	3	1	2	3
R	Ecl., Oc., Sh., Tr.	Δ 0d·01	R	Ecl., Oc., Sh., Tr.	Δ 0d·01
d	d		d	d	
0·00	0·000320	− 10	1·00	0·000422	+ 8
·02	301	9	·02	438	8
·04	282	9	·04	455	8
·06	264	9	·06	471	8
·08	246	9	·08	486	7
·10	229	9	·10	500	7
0·12	0·000212	− 8	1·12	0·000513	+ 6
·14	195	8	·14	525	6
·16	179	8	·16	536	6
·18	163	8	·18	547	5
·20	148	7	·20	556	4
0·22	0·000134	− 7	1·22	0·000563	+ 4
·24	122	6	·24	570	3
·26	110	6	·26	575	2
·28	100	5	·28	579	2
·30	90	5	·30	582	1
0·32	0·000081	− 4	1·32	0·000584	+ 1
·34	74	3	·34	584	0
·36	68	3	·36	583	− 1
·38	63	2	·38	580	2
·40	59	2	·40	576	2
0·42	0·000057	− 1	1·42	0·000571	− 3
·44	56	0	·44	565	4
·46	57	+ 1	·46	557	4
·48	58	1	·48	548	5
·50	61	2	·50	538	5
0·52	0·000065	+ 3	1·52	0·000527	− 6
·54	71	3	·54	515	6
·56	78	4	·56	502	7
·58	86	5	·58	488	7
·60	96	5	·60	473	8
0·62	0·000106	+ 6	1·62	0·000457	− 8
·64	118	6	·64	441	8
·66	130	6	·66	425	9
·68	143	7	·68	407	9
·70	157	7	·70	389	9
0·72	0·000173	+ 8	1·72	0·000371	− 9
·74	189	8	·74	353	9
·76	205	8	·76	334	9
·78	222	9	·78	316	9
·80	240	9	·80	297	9
0·82	0·000258	+ 9	1·82	0·000279	− 9
·84	276	9	·84	260	9
·86	294	9	·86	242	9
·88	313	10	·88	224	9
·90	332	9	·90	207	8
0·92	0·000350	+ 9	1·92	0·000191	− 8
·94	368	9	·94	175	8
·96	387	9	·96	160	7
·98	405	9	·98	145	7
1·00	0·000422	+ 8	2·00	0·000131	− 7

Applied Constant: +0d·000320.

LIX

1	2	3
A	Ecl., Oc., Sh., Tr.	Δ 0d·1
d	d	
0·0	0·000061	+ 10
·2	82	10
·4	101	9
·6	114	5
·8	121	+ 2
1·0	120	− 2
1·2	0·000113	− 6
·4	97	9
·6	78	10
·8	57	11
2·0	36	10
2·2	0·000018	− 8
·4	6	5
·6	0	− 1
·8	2	+ 3
3·0	12	7
3·2	0·000027	+ 9
·4	47	10
·6	69	11
·8	89	10
4·0	106	8
4·2	0·000117	+ 4
·4	121	+ 1
·6	118	− 4
·8	108	7
5·0	91	10
5·2	0·000071	− 11
·4	49	11
·6	29	9
·8	12	7
6·0	3	− 3
6·2	0·000000	0
·4	4	+ 4
·6	17	8
·8	34	10
7·0	54	11
7·2	0·000076	+ 10
·4	96	9
·6	112	7
·8	120	+ 3
8·0	0·000122	− 1

Constant: +0d·000061.

SATELLITE II

Tables of the Phenomena

Equations of the Reduction

LX

P	Ecl Oc Sh Tr
1850	0 000029
52	2
54	14
56	7
58	
60	0
1862	0 00 00
64	5
66	1
68	20
70	27
1872	0 000033
74	37
76	38
78	35
80	30
1882	0 000022
84	15
86	8
88	3
90	1
1892	0 0000
94	6
96	13
98	
1900	0 000028

P	Ecl Oc Sh Tr
	d
1900	0 000028
02	34
04	38
06	39
08	37
10	31
1912	0 0000 4
14	16
16	10
18	4
20	
1922	0 000003
24	7
26	13
28	21
30	29
1932	0 000035
34	39
36	40
38	37
40	32
1942	0 000025
44	17
46	10
48	5
1950	0 00000

Appli d C t t + 0000

P	Ecl Oc Sh Tr
	d
1950	0 000002
52	3
54	7
56	13
58	20
60	7
1962	0 000034
64	38
66	39
68	37
70	31
1972	0 000024
74	16
76	9
78	4
80	1
1982	0 000001
84	5
86	11
88	18
90	6
1992	0 00003
94	;7
96	38
98	35
2000	0 000030

LXI

S	Ecl Oc Sh Tr
d	d
00	0 000020
1	14
2	10
3	6
4	4
5	4
06	0 000006
7	10
8	15
9	20
10	26
11	0 000031
2	35
3	36
4	36
5	34
16	0 000030
7	4
8	19
9	13
20	0 000009

C ns t + 0000

LXII

Ecl Oc	T	Sh Tr
	— —	3
d	d	d
000075	00	0 0000 3
73	2	1
71	4	19
72	6	20
74	8	2
76	10	24
0 000078	12	0 0000 6
79	4	27
77	6	25
75	8	23
0 000072	20	2

Appli d C t t + 000049
Ap t f th Eq ti f Light i i l d d

LXIII

U	Ecl Oc Sh Tr	U	Ecl Oc Sh Tr
d	d	d	d
00	0 000030	20	0 000015
1	23	1	10
2	16	2	9
3	11	3	10
4	9	4	13
5	9	5	18
06	0 000012	26	0 000025
7	17	7	32
8	23	8	40
9	31	9	46
10	38	30	50
11	0 000045	31	0 000051
2	49	2	50
3	51	3	47
4	51	4	41
5	48	5	34
16	0 000042	36	0 000027
7	36	7	19
8	28	8	14
9	21	9	10
20	0 000015	40	0 000009

C t t + 00003

SATELLITE II

Tables of the Phenomena

LXIV — **Equation of the Reduction** — Oc., Tr.

γ \ Q	$0^d.0$	$0^d.2$	$0^d.4$	$0^d.6$	$0^d.8$	$1^d.0$	$1^d.2$	$1^d.4$	$1^d.6$	$1^d.8$	$2^d.0$	$2^d.2$	$2^d.4$	$2^d.6$	$2^d.8$	$3^d.0$	$3^d.2$	$3^d.4$	$3^d.6$	$3^d.8$	$4^d.0$
d																					
0	± 6	± 6	± 4	± 3	± 1	∓ 1	∓ 3	∓ 5	∓ 6	∓ 6	∓ 5	∓ 4	∓ 3	∓ 1	± 1	± 3	± 5	± 6	± 6	± 5	± 4
10	± 29	27	22	14	± 5	∓ 6	15	23	27	29	26	21	13	∓ 3	± 7	16	23	28	28	26	± 20
20	± 50	47	38	25	± 8	∓ 10	26	40	48	50	46	37	23	∓ 6	± 12	28	41	48	50	45	± 35
30	± 71	66	54	35	± 11	∓ 14	37	56	67	71	65	52	32	∓ 8	± 17	40	57	68	70	64	± 49
40	± 89	84	67	43	± 14	∓ 17	47	70	85	89	82	65	40	∓ 10	± 21	50	72	86	88	80	± 62
50	± 105	98	79	51	± 17	∓ 20	55	82	100	105	97	76	47	∓ 12	± 25	59	85	101	104	94	± 73
60	± 117	110	89	57	± 18	∓ 23	62	92	112	117	108	85	53	∓ 13	± 28	66	95	113	116	106	± 82
70	± 126	119	96	62	± 20	∓ 25	66	100	120	126	117	92	57	∓ 14	± 30	71	102	121	125	114	± 88
80	± 132	124	100	64	± 21	∓ 26	69	104	126	132	122	96	59	∓ 15	± 32	74	107	127	131	118	± 92
90	± 133	125	101	65	± 21	∓ 26	70	105	127	133	123	97	60	∓ 15	± 32	75	108	128	132	120	± 93
100	± 130	123	99	64	± 21	∓ 26	69	103	125	130	121	95	59	∓ 15	± 31	74	106	126	129	118	± 91
110	± 124	117	94	61	± 20	∓ 24	65	98	119	124	115	91	56	∓ 14	± 30	70	101	120	123	112	± 87
120	± 114	107	87	56	± 18	∓ 22	60	90	109	114	106	83	52	∓ 13	± 27	64	93	110	113	103	± 80
130	± 101	95	77	49	± 16	∓ 20	53	80	96	101	93	74	46	∓ 12	± 24	57	82	97	100	91	± 71
140	± 85	80	64	41	± 13	∓ 17	45	67	81	85	78	62	38	∓ 10	± 20	48	69	81	84	76	± 59
150	± 66	62	50	32	± 10	∓ 13	35	52	63	66	61	48	30	∓ 7	± 16	37	54	63	65	60	± 46
160	± 45	42	34	22	± 7	∓ 9	24	36	43	45	42	33	20	∓ 5	± 11	25	37	43	45	41	± 32
170	± 23	± 22	± 17	± 11	± 4	∓ 4	∓ 12	∓ 18	∓ 22	∓ 23	∓ 21	∓ 17	∓ 10	∓ 3	± 6	± 13	± 19	± 22	± 23	± 21	± 16
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	∓ 23	∓ 21	∓ 17	∓ 11	∓ 4	± 4	± 12	± 18	± 22	± 23	± 21	± 16	± 10	± 3	∓ 5	∓ 13	∓ 18	∓ 22	∓ 22	∓ 20	∓ 16
200	∓ 44	42	34	22	∓ 7	± 9	23	35	42	44	41	32	20	± 5	∓ 11	25	36	43	44	40	∓ 31
210	∓ 65	62	50	32	∓ 10	± 13	34	52	62	65	61	48	30	± 7	∓ 16	37	53	63	65	59	∓ 46
220	∓ 84	79	64	41	∓ 13	± 16	44	66	80	84	78	61	38	± 9	∓ 20	47	68	81	84	76	∓ 59
230	∓ 101	95	76	49	∓ 16	± 20	53	79	96	101	93	73	45	± 11	∓ 24	57	82	97	100	91	∓ 70
240	∓ 114	107	86	56	∓ 18	± 22	60	90	109	114	105	83	51	± 13	∓ 27	64	93	110	113	103	∓ 80
250	∓ 124	117	94	61	∓ 20	± 24	65	98	118	124	115	91	56	± 14	∓ 30	70	101	119	123	112	∓ 87
260	∓ 130	123	99	64	∓ 21	± 26	69	103	125	130	121	95	59	± 15	∓ 31	74	106	126	129	118	∓ 91
270	∓ 133	125	101	65	∓ 21	± 26	70	105	127	133	123	97	60	± 15	∓ 32	75	106	128	132	120	∓ 93
280	∓ 132	124	100	64	∓ 21	± 26	69	104	126	132	122	96	59	± 15	∓ 32	74	107	127	131	119	∓ 92
290	∓ 126	119	96	62	∓ 20	± 25	66	100	121	126	117	92	57	± 14	∓ 30	71	102	121	125	114	∓ 88
300	∓ 117	110	89	57	∓ 19	± 23	62	93	112	117	108	85	53	± 13	∓ 28	65	95	113	116	106	∓ 82
310	∓ 105	99	80	51	∓ 17	± 20	55	83	100	105	97	76	47	± 12	∓ 25	59	85	101	104	95	∓ 73
320	∓ 89	84	68	44	∓ 14	± 17	47	70	85	89	82	65	40	± 10	∓ 21	50	72	86	88	80	∓ 62
330	∓ 71	67	54	35	∓ 11	± 14	37	56	68	71	66	52	32	± 8	∓ 17	40	58	68	70	64	∓ 50
340	∓ 51	48	38	25	∓ 8	± 10	27	40	48	51	47	37	23	± 6	∓ 12	29	41	49	50	46	∓ 35
350	∓ 29	27	22	14	∓ 5	± 6	15	23	27	29	27	21	13	± 3	∓ 7	16	23	28	29	26	∓ 20
360	∓ 6	∓ 6	∓ 5	∓ 3	∓ 1	± 1	± 3	± 5	± 6	± 6	± 6	± 5	± 3	± 1	∓ 2	∓ 4	∓ 5	∓ 6	∓ 6	∓ 6	∓ 4
370	± 17	± 16	± 13	± 8	± 3	∓ 3	∓ 9	∓ 13	∓ 16	∓ 17	∓ 15	∓ 12	∓ 8	∓ 2	± 4	± 9	± 14	± 16	± 17	± 15	± 12
380	± 39	37	29	19	± 6	∓ 8	20	31	37	39	36	28	18	∓ 4	± 9	22	32	37	39	35	± 27
390	± 60	57	46	29	± 9	∓ 12	32	47	57	60	56	44	27	∓ 7	± 14	34	49	58	60	54	± 42
400	± 80	± 75	± 60	± 39	± 13	∓ 16	∓ 42	∓ 63	∓ 76	∓ 80	∓ 74	∓ 58	∓ 36	∓ 9	± 19	± 45	± 65	± 77	± 79	± 72	± 56

1 unit in this Table equals $0^d.000001$. No Constant has been added. The upper sign refers to Occultations, the lower to Transits.

h

SATELLITE III

Tables of the Phenomena

LVI — Reduction to Middle — Argument O

O	Ecl Oc Sh T	3 Δ o 01	O	Ecl Oc Sh T	3 Δ o o	O	Ecl O Sh T	3 Δ 01	O	E l Oc Sh Tr	3 Δ o 01
d	d			d			d			d	
0 00	−0 000440	−27 5	2 00	+0 00 129	+ 5 6	4 00	−0 001499	− 0 1	6 00	+0 000965	+1 1
04	55	27 5	04	30	4 8	04	1577	18 9	04	101	10 4
08	66	27 3	08	3 7	3 9	08	165	17 4	08	1048	8 5
12	768	26 8	12	421	3 0	12	1716	15 9	12	1078	6 6
16	874	6 3	16	511	1 9	16	1777	14 4	16	11 1	4 9
20	978	25 8	20	596	0 6	20	1831	1 6	20	1117	3 0
0 24	−0 001080	−25 1	2 24	+0 0 0676	+19 4	4 24	−0 0 1878	−10 9	6 24	+0 0011 5	+ 1 0
28	1179	4 4	28	751	17 9	28	1918	9 1	28	1125	− 1 0
32	1 75	23 4	32	819	16 3	32	1951	7 3	32	1117	9
36	1366	21 8	36	881	14 8	36	1976	5 4	36	11	4 8
40	1453	21 0	40	937	13 3	40	1994	3 5	40	1079	6 6
0 44	−0 001534	−19 6	2 44	+0 000987	+11 5	4 44	−0 00 004	− 1 5	6 44	+0 001049	− 8 5
48	1610	18 3	48	10 9	9 5	48	0 6	+ 0 5	48	1 11	10 4
52	1680	16 8	52	1063	7 6	52	2000	4	52	966	1 1
56	1744	15 3	56	1090	5 9	56	1987	4 3	56	914	13 8
60	1802	13 6	60	1110	4 1	60	1966	6 1	60	856	15 5
0 64	−0 001853	−11 9	2 64	+0 001123	+ 2 1	4 64	−0 001938	+ 8 0	6 64	+0 00079	−17 1
68	1897	10 1	68	11 7	+ 0 1	68	190	9 9	68	719	18 5
72	1934	8 4	72	11 4	− 1 8	72	1859	11 6	72	64	19 9
76	1964	6 5	76	1113	3 8	76	18 9	13 3	76	560	1 1
80	1986	4 5	80	1094	5 6	80	1753	14 9	80	473	3
0 84	−0 00 000	− 2 6	2 84	+0 001068	− 7 5	4 84	001690	+16 6	6 84	+0 000382	− 3 4
88	2007	− 0 6	88	1034	9 4	88	16 0	18 1	88	286	4 4
92	2005	+ 1 4	92	993	11 1	92	1545	19 5	92	187	5 3
96	1996	3 1	96	945	12 8	96	1464	0 8	96	+ 84	6 0
1 00	1980	5 0	3 00	891	14 5	5 00	1379	1 9	7 00	− 21	26 4
1 04	−0 001956	+ 7 0	3 04	+0 00 8 9	−16 3	5 04	−0 001289	+ 3 1	7 04	0 000127	− 6 9
08	19 4	8 9	08	761	17 8	08	1194	4 3	08	36	7 3
12	1885	10 6	12	687	19 1	12	1095	25 0	12	345	7 3
16	1839	1 3	16	608	20 4	16	994	5 6	16	454	27 5
20	1787	14 0	20	5 4	1 6	20	890	26 3	20	565	7 5
1 24	−0 001727	+15 8	3 24	+0 0 435	− 8	5 24	−0 00 784	+ 6 9	7 24	−0 0 0674	−27 1
28	1661	17 3	28	34	3 9	28	675	27 3	28	78	6 9
32	1589	18 8	32	244	24 9	32	566	27 3	32	889	6 4
36	1511	20 1	36	143	5 5	36	457	7 4	36	993	25 6
40	14 8	21 3	40	+ 40	26 1	40	347	7 5	40	1094	5 0
1 44	−0 001341	+2 4	3 44	−0 000066	−26 8	5 44	−0 000 37	+ 7 3	7 44	−0 001193	− 4 1
48	1249	3 6	48	174	27 1	48	1 9	7 0	48	1 87	3 1
52	1152	24 6	52	83	27 3	52	− 21	6 6	52	1378	2 3
56	1052	25 3	56	39	27 4	56	+ 84	25 9	56	1465	21
60	950	25 9	60	50	7 4	60	186	5 1	60	1546	19 5
1 64	−0 000845	+26 6	3 64	−0 000612	−27 4	5 64	+0 000285	+24 4	7 64	−0 0 16 1	−18 0
68	737	27 1	68	721	27 1	68	381	23 5	68	1690	16 6
72	628	7 3	72	829	26 6	72	473	2 3	72	1754	15 1
76	519	7 4	76	934	6	76	559	1 0	76	1811	13 4
80	4 9	27 5	80	1 37	25 5	80	641	0 0	80	1861	11 6
1 84	−0 000299	+ 7 4	3 84	−0 001138	−24 6	5 84	+0 000719	+18 6	7 84	−0 001904	− 9 9
88	19	27 1	88	1234	23 6	88	790	16 9	88	1940	8 1
92	− 8	26 9	92	1327	22 8	92	854	15 4	92	1969	6 3
96	+ 5	26 4	96	1416	21 5	96	913	13 9	96	1990	4 3
2 00	+ 129	+25 6	4 00	−0 001499	−20 1	6 00	+0 000965	+12 1	8 00	−0 00 0 3	− 2 3

Appli d C t t 00044 Th E t y m t b t d by th Eq t f T bl LVII LXIV Th wh l m t b ted by ddi g t it it
p d t by th V l tl d wn f m T bl XXXIII XXXVI F Sh d d T it it m t l b t d f J p t Ph by T bl LXV

SATELLITE III

Tables of the Phenomena

Equations of the Reduction

LVII

1	2
P	Ecl., Oc., Sh., Tr.
d	d
0·0	0·000020
·1	24
·2	27
·3	30
·4	32
·5	35
0·6	0·000037
·7	38
·8	39
·9	39
1·0	39
1·1	0·000038
·2	37
·3	35
·4	32
·5	29
1·6	0·000026
·7	23
·8	19
·9	16
2·0	13
2·1	0·000010
·2	7
·3	5
·4	3
·5	2
2·6	0·000001
·7	1
·8	1
·9	2
3·0	3
3·1	0·000005
·2	8
·3	11
·4	14
·5	17
3·6	0·000021
·7	24
·8	27
·9	30
4·0	0·000033

Constant: $+0^d\!\cdot\!000020$.

LVIII

1	2	3	1	2	3
Q	Ecl., Oc., Sh., Tr.	Δ $0^d\!\cdot\!01$	Q	Ecl., Oc., Sh., Tr.	Δ $0^d\!\cdot\!01$
d	d		d	d	
0·00	0·000290	− 3,5	2·00	0·000362	+ 3,3
·04	276	3,5	·04	375	3,2
·08	262	3,5	·08	388	3,0
·12	248	3,4	·12	399	2,9
·16	235	3,4	·16	411	2,9
·20	221	3,4	·20	422	2,5
0·24	0·000208	− 3,3	2·24	0·000431	+ 2,4
·28	195	3,1	·28	441	2,4
·32	183	2,9	·32	450	2,1
·36	172	2,8	·36	458	1,9
·40	161	2,6	·40	465	1,8
0·44	0·000151	− 2,5	2·44	0·000472	+ 1,5
·48	141	2,4	·48	477	1,1
·52	132	2,3	·52	481	1,0
·56	123	2,0	·56	485	0,8
·60	116	1,8	·60	487	0,4
0·64	0·000109	− 1,5	2·64	0·000488	+ 0,2
·68	104	1,3	·68	489	+ 0,1
·72	99	1,1	·72	489	− 0,2
·76	95	0,8	·76	487	0,5
·80	93	0,5	·80	485	0,8
0·84	0·000091	− 0,4	2·84	0·000481	− 0,9
·88	90	− 0,1	·88	478	1,0
·92	90	+ 0,1	·92	473	1,5
·96	91	0,4	·96	466	1,6
1·00	93	0,6	3·00	460	1,8
1·04	0·000096	+ 0,9	3·04	0·000452	− 2,1
·08	100	1,1	·08	443	2,4
·12	105	1,4	·12	433	2,5
·16	111	1,6	·16	423	2,6
·20	118	1,8	·20	412	2,8
1·24	0·000125	+ 2,0	3·24	0·000401	− 2,9
·28	134	2,3	·28	389	3,0
·32	143	2,4	·32	377	3,2
·36	153	2,6	·36	363	3,3
·40	164	2,8	·40	351	3,3
1·44	0·000175	+ 2,8	3·44	0·000337	− 3,4
·48	186	3,0	·48	324	3,4
·52	199	3,2	·52	310	3,5
·56	212	3,3	·56	296	3,5
·60	225	3,3	·60	282	3,5
1·64	0·000238	+ 3,4	3·64	0·000268	− 3,5
·68	252	3,5	·68	254	3,5
·72	266	3,5	·72	240	3,4
·76	280	3,5	·76	227	3,3
·80	294	3,5	·80	214	3,4
1·84	0·000308	+ 3,5	3·84	0·000200	− 3,3
·88	322	3,4	·88	188	3,0
·92	335	3,4	·92	176	2,9
·96	349	3,4	·96	165	2,6
2·00	0·000362	+ 3,3	4·00	0·000155	− 2,4

Applied Constant: $+0^d\!\cdot\!000290$.

SATELLITE III

Tables of the Phenomena

Equations of the Reduction

LIX

R	Ecl Oc Sh Tr	R	Ecl Oc Sh Tr
d	d	d	d
00	0 000050	**20**	0 000064
1	43	**1**	70
2	36	**2**	76
3	30	**3**	80
4	25	**4**	84
5	20	**5**	87
06	0 000016	**26**	0 000089
7	13	**7**	89
8	11	**8**	88
9	11	**9**	86
10	11	**30**	83
11	0 000013	**31**	0 000080
2	16	**2**	74
3	21	**3**	68
4	26	**4**	62
5	31	**5**	55
16	000037	**36**	0 000048
7	44	**7**	42
8	51	**8**	35
9	58	**9**	29
20	0 000064	**40**	000024

Appli 1 O t t + 00005

LX

S	Ecl Oc Sh Tr	S	Ecl Oc Sh T
d	d	d	d
00	0 000010	**40**	0 000004
2	7	**2**	3
4	5	**4**	2
6	3	**6**	2
8	2	**8**	3
10	2	**50**	4
12	0 000003	**52**	0 000007
4	4	**4**	10
6	7	**6**	13
8	10	**8**	16
20	13	**60**	17
22	0 000016	**62**	0 000018
4	17	**4**	18
6	18	**6**	17
8	18	**8**	15
30	17	**70**	13
32	0 000015	**72**	0 000010
4	12	**4**	7
6	9	**6**	4
8	6	**8**	3
40	0 000004	**80**	0 00000

Appli 1 C t t | 0000

LXI

D	Ecl Oc Sh Tr	D	Ecl Oc Sh Tr
d	d	d	d
00	0 000010	**40**	0 000007
2	1	**2**	6
4	13	**4**	5
6	14	**6**	4
8	15	**8**	3
10	16	**50**	2
12	0 000017	**52**	0 00000
4	18	**4**	2
6	18	**6**	2
8	18	**8**	2
20	18	**60**	3
22	0 000018	**62**	0 000004
4	17	**4**	5
6	16	**6**	6
8	15	**8**	7
30	14	**70**	8
32	0 000013	**72**	0 000010
4	12	**4**	12
6	10	**6**	13
8	8	**8**	14
40	0 000007	**80**	0 000015

Appli d O st t + 000

LXII

Ecl Oc	N	3 Sh Tr	Ecl Oc	N	3 Sh Tr
d		d	d		
0 000085	**1850**	0 000035	0 000114	**1925**	0 000006
83	**55**	37	116	**30**	4
82	**60**	38	116	**35**	4
82	**65**	38	116	**40**	4
83	**70**	37	115	**45**	5
84	**75**	36	113	**50**	7
0 000086	**1880**	0 000034	0 000110	**1955**	0 000010
89	**85**	31	1 7	**60**	13
92	**90**	8	104	**65**	16
96	**95**	4	1 0	**70**	0
99	**1900**	21	97	**75**	3
0 000103	**1905**	0 000017	0 000094	**1980**	0 000026
107	**10**	13	91	**85**	9
110	**15**	10	88	**90**	3
113	**20**	7	87	**95**	33
0 000114	**1925**	0 000006	0 000086	**2000**	0 000034

Appli d C t t + oo 6
A p ti f tl Eq ti f Ligl ti 1 1 d d

SATELLITE III

Tables of the Phenomena

LXIII | Equation of the Reduction | Oc., Tr.

γ \ O	$0^{d}.0$	$0^{d}.2$	$0^{d}.4$	$0^{d}.6$	$0^{d}.8$	$1^{d}.0$	$1^{d}.2$	$1^{d}.4$	$1^{d}.6$	$1^{d}.8$	$2^{d}.0$	$2^{d}.2$	$2^{d}.4$	$2^{d}.6$	$2^{d}.8$	$3^{d}.0$	$3^{d}.2$	$3^{d}.4$	$3^{d}.6$	$3^{d}.8$	$4^{d}.0$
^{d} 0	± 9	± 8	± 8	± 7	± 6	± 5	± 4	± 3	± 1	0	∓ 1	∓ 3	∓ 4	∓ 6	∓ 6	∓ 7	∓ 8	∓ 8	∓ 9	∓ 8	∓ 8
10	± 54	53	50	46	41	34	26	18	± 8	∓ 1	10	19	27	35	42	47	51	53	54	53	∓ 50
20	± 97	95	91	83	74	62	48	32	± 16	∓ 1	18	34	49	63	75	84	92	96	97	95	∓ 90
30	± 137	135	129	119	105	88	68	46	± 23	∓ 2	26	48	71	89	107	121	130	136	137	135	∓ 129
40	± 174	172	164	150	132	111	86	58	± 29	∓ 2	33	61	89	113	135	152	165	172	174	171	∓ 162
50	± 206	202	193	177	156	132	101	68	± 35	∓ 2	39	72	105	134	159	180	195	203	206	202	∓ 191
60	± 230	227	217	200	176	148	113	76	± 39	∓ 3	43	81	118	150	179	202	219	228	230	226	∓ 215
70	± 249	245	234	215	190	159	122	83	± 42	∓ 3	46	88	127	162	193	218	236	246	249	245	∓ 232
80	± 261	257	245	225	199	167	129	87	± 44	∓ 3	48	92	134	170	203	228	247	258	261	256	∓ 243
90	± 264	260	248	228	201	169	130	88	± 44	∓ 3	49	93	135	172	205	231	250	261	264	259	∓ 246
100	± 260	256	243	225	197	166	128	86	± 43	∓ 3	48	91	132	169	201	228	246	257	260	255	∓ 242
110	± 248	244	233	214	189	159	122	82	± 41	∓ 3	46	87	127	162	192	217	235	245	248	243	∓ 231
120	± 229	225	215	197	174	146	113	77	± 38	∓ 3	42	81	117	149	177	197	217	226	229	224	∓ 213
130	± 202	199	190	175	155	129	100	68	± 33	∓ 2	37	72	103	132	158	175	192	200	202	199	∓ 189
140	± 170	167	160	147	130	109	84	57	± 28	∓ 2	31	60	87	111	132	149	161	168	170	167	∓ 158
150	± 134	132	126	115	102	86	65	45	± 22	∓ 1	25	47	68	87	104	117	127	132	134	131	∓ 125
160	± 92	91	87	80	70	59	45	31	± 16	∓ 1	18	33	48	60	71	81	88	91	92	91	∓ 86
170	± 48	48	46	42	37	31	24	16	± 9	∓ 1	9	17	25	32	37	43	46	48	48	48	∓ 45
180	± 5	± 5	± 3	± 3	± 3	± 2	± 2	± 1	± 1	0	∓ 1	∓ 1	∓ 2	∓ 2	∓ 3	∓ 3	∓ 5	∓ 5	∓ 5	∓ 5	∓ 3
190	∓ 41	∓ 40	∓ 39	∓ 36	∓ 31	∓ 27	∓ 20	∓ 14	∓ 6	± 1	± 7	± 15	± 21	± 27	± 32	± 36	± 39	± 40	± 41	± 40	± 39
200	∓ 85	84	80	73	65	54	42	28	∓ 14	± 1	15	30	43	55	66	74	81	84	85	84	± 79
210	∓ 127	125	119	110	97	81	63	42	∓ 22	± 1	23	45	65	83	99	111	120	125	127	124	± 118
220	∓ 164	162	154	142	125	105	81	55	∓ 28	± 2	31	58	84	107	128	144	156	163	164	162	± 154
230	∓ 198	195	186	171	150	127	97	66	∓ 33	± 2	37	69	101	129	153	173	187	196	198	194	± 184
240	∓ 224	221	211	194	171	144	110	74	∓ 38	± 3	42	79	115	146	175	197	212	222	224	220	± 209
250	∓ 245	242	230	212	187	157	120	82	∓ 41	± 3	46	87	125	159	190	215	232	243	245	241	± 229
260	∓ 258	254	242	223	197	166	128	86	∓ 43	± 3	48	91	132	169	201	226	244	255	258	254	± 240
270	∓ 264	260	248	228	201	169	130	88	∓ 44	± 3	49	93	135	172	205	231	250	261	264	259	± 246
280	∓ 261	257	245	225	199	167	129	87	∓ 44	± 3	48	92	134	170	203	228	247	258	261	256	± 243
290	∓ 252	248	236	217	192	161	123	84	∓ 42	± 3	47	88	129	164	196	220	238	249	252	247	± 234
300	∓ 235	230	219	202	178	150	116	79	∓ 39	± 3	43	83	120	153	182	203	221	231	235	229	± 218
310	∓ 210	207	197	182	160	134	103	70	∓ 35	± 2	39	74	107	137	164	184	199	208	210	206	± 196
320	∓ 179	176	168	155	137	115	88	60	∓ 29	± 2	33	63	91	117	139	157	170	177	179	176	± 167
330	∓ 144	142	135	124	109	92	70	48	∓ 23	± 2	26	51	73	94	111	125	137	142	144	141	± 133
340	∓ 104	102	97	90	79	66	52	35	∓ 18	± 1	20	36	53	68	80	91	98	102	104	102	± 97
350	∓ 60	59	57	52	45	39	30	20	∓ 10	± 1	12	21	31	39	46	53	57	59	60	59	± 56
360	∓ 15	∓ 15	∓ 15	∓ 14	∓ 11	∓ 10	∓ 8	∓ 5	∓ 1	0	± 3	± 5	± 8	± 10	± 13	± 14	± 15	± 15	± 15	± 15	± 15
370	± 30	± 30	± 28	± 26	± 23	± 19	± 14	± 10	± 5	0	∓ 5	∓ 11	∓ 15	∓ 20	∓ 23	∓ 26	∓ 28	∓ 30	∓ 30	∓ 29	∓ 28
380	± 74	73	69	64	57	47	36	25	± 12	∓ 1	13	26	37	48	58	64	70	73	74	74	∓ 69
390	± 117	115	109	101	89	74	58	39	± 20	∓ 1	21	41	60	76	91	102	110	115	116	114	∓ 108
400	± 155	± 153	± 146	± 134	± 118	± 99	± 77	± 52	± 26	∓ 2	∓ 29	∓ 55	∓ 80	∓ 101	∓ 120	∓ 136	∓ 148	∓ 154	∓ 155	∓ 153	∓ 145

No Constant has been applied. The unit equals $0^{d}.000001$. The upper sign applies for Occultations, the lower for Transits.

γ \ O	4d0	4d2	4d4	4d6	4d8	5d0	5d2	5d4	5d6	5d8	6d0	6d2	6d4	6d6	6d8	7d0	7d2	7d4	7d6	7d8	8d0
d																					
0	∓ 8	∓ 7	∓ 6	∓ 5	∓ 4	∓ 3	∓ 1		± 1	± 3	± 4	± 6	± 6	± 7	± 8	± 9	± 9	± 8	± 8	± 7	± 6
10	∓ 50	45	41	33	25	17	∓ 8	± 2	11	0	28	36	4	47	51	53	54	5	49	45	± 40
20	∓ 90	8	73	60	47	30	∓14	± 3	19	36	51	65	77	85	9	96	97	95	89	81	± 71
30	∓129	117	103	85	66	43	∓ 0	± 4	8	51	73	9	108	12	130	136	137	134	1 8	116	±1 1
40	∓16	148	130	108	83	54	∓ 5	± 5	35	64	93	116	137	154	166	173	174	170	161	147	±1 8
50	∓191	175	154	1 8	98	64	∓3	± 6	42	76	109	138	161	181	195	204	206	201	190	173	±151
60	∓215	197	173	143	11	73	∓33	± 7	48	85	1 2	155	182	04	22	2 9	230	226	14	195	±170
70	∓23	212	187	154	119	79	∓36	± 8	51	93	13	167	196	220	37	247	249	44	230	21	±183
80	∓243	3	196	162	125	8	∓38	± 8	53	97	138	175	205	30	48	59	61	255	41	221	±19
90	∓246	22	198	164	1 6	83	∓38	± 8	54	98	140	177	208	233	51	62	264	258	244	23	±194
100	∓242	2	194	161	1 4	81	∓37	± 8	53	96	137	174	204	230	247	258	60	254	40	2 0	±190
110	∓ 31	11	186	154	119	78	∓35	± 7	50	9	132	166	195	219	235	46	248	24	229	209	±18
120	∓ 13	194	171	142	109	7	∓33	± 7	46	85	1 1	153	180	201	18	2 7	9	224	21	193	±168
130	∓189	173	152	1 5	97	64	∓ 9	± 6	41	75	107	135	16	179	193	2 1	202	198	187	171	±149
140	∓158	145	1 8	106	81	54	∓24	± 5	34	63	90	115	134	150	162	169	170	166	157	144	±1 5
150	∓125	114	1 0	83	63	42	∓19	± 4	8	50	70	90	105	118	127	133	134	131	124	113	± 98
160	∓ 86	79	69	58	44	9	∓13	± 3	19	34	49	6	73	8	88	92	92	90	86	79	± 68
170	∓ 45	42	36	3	4	15	∓ 7	± 1	10	18	26	3	39	43	46	48	48	47	45	41	± 35
180	∓ 3	∓ 3	∓ 3	∓	∓	∓ 1		0	± 1	± 1	±	±	± 3	± 3	± 5	± 5	± 5	± 5	± 3	± 3	± 3
190	± 39	± 35	± 31	± 6	±19	± 3	± 6	∓ 1	∓ 8	∓16	∓2	∓ 8	∓ 3	∓ 37	∓ 39	∓ 41	∓ 41	∓ 4	∓ 38	∓ 35	∓ 30
200	± 79	72	64	53	41	27	±13	∓ 3	17	3	45	57	67	75	81	85	85	83	78	71	∓ 63
210	±118	109	97	79	61	40	±19	∓ 4	6	47	67	85	100	112	1	126	1 7	124	117	108	∓ 93
220	±154	140	1 3	1	77	5	± 4	∓ 5	33	61	88	110	130	145	157	164	164	161	152	139	∓1 1
230	±184	168	148	123	9	6	± 9	∓ 6	40	73	105	133	155	174	188	196	198	193	183	167	∓145
240	±209	19	169	14	107	7	±33	∓ 7	46	83	119	151	177	199	213	2 3	24	219	206	19	∓165
250	± 9	9	184	15	117	77	±35	∓ 7	50	91	13	164	193	15	33	243	245	240	227	207	∓180
260	± 40	2	194	161	124	81	±37	∓ 8	53	96	137	174	204	8	245	256	58	252	38	18	∓190
270	± 46	5	198	164	1 6	83	±38	∓ 8	54	98	14	177	208	33	251	262	264	58	244	3	∓194
280	± 43	223	196	162	1 5	8	±38	∓ 8	53	97	138	175	06	30	248	59	261	255	241	221	∓19
290	± 34	5	189	57	12	79	±36	∓ 8	51	93	133	169	198	2 2	239	50	5	246	33	13	∓185
300	± 8	199	175	145	11	73	±33	∓ 7	48	87	1 4	157	184	06		33	235	228	216	197	∓17
310	±196	179	157	130	1 0	66	±30	∓ 6	43	78	111	140	166	186	00	208	210	205	194	178	∓154
320	±167	153	135	111	85	57	± 5	∓ 5	36	67	95	1 1	141	158	170	178	179	175	165	151	∓13
330	±133	1 2	108	9	68	45	± 0	∓ 4	30	53	76	97	113	126	137	143	144	141	132	121	∓1 6
340	± 97	89	77	64	49	33	±14	∓ 3	2	38	55	69	81	92	99	103	104	101	96	88	∓ 76
350	± 56	52	45	37	8	19	± 8	∓ 2	13	22	32	40	47	53	57	60	60	59	56	51	∓ 44
360	± 15	± 14	± 11	±1	± 8	± 5	±	0	∓ 4	∓ 6	∓ 9	∓ 10	∓ 13	∓ 14	∓ 15	∓ 15	∓ 15	∓ 15	∓ 14	∓ 13	∓ 11
370	∓ 28	∓ 5	∓ 3	∓19	∓14	∓ 9	∓ 5	± 1	± 6	±11	±16	± 0	± 3	± 26	± 8	± 30	± 30	± 29	± 8	± 25	±
380	∓ 69	63	56	46	36	3	∓11	± 2	15	8	39	50	59	65	70	74	74	72	68	6	± 55
390	∓1 8	1 0	87	7	56	37	∓17	± 4	3	43	61	78	92	102	110	115	116	114	107	99	± 86
400	∓145	∓133	∓116	∓96	∓74	∓49	∓23	± 5	±31	±58	±83	±104	±122	±137	±148	±154	±155	±152	±144	±131	±114

N C t th b dd d Th it q l ooo m Tl pp ig ppl f O ltati th l f T it

SATELLITE IV

Tables of the Phenomena

LII — Reduction to Middle — Argument J

J	Ecl Sh / Oc Tr (d)	Δ (3)	½Δ² (4)
00	−0 001100	− 13	0
01	1313	13	+1
02	15 5	211	1
03	1735	208	
04	1940	04	2
05	214	199	3
06	−0 00 337	−19	+4
07	525	184	4
08	2705	176	5
09	2876	166	5
10	3037	156	5
11	−0 003187	−145	+6
12	3326	13	7
13	3451	119	7
14	3563	106	7
15	3662	91	8
16	0 003745	− 76	+7
17	3814	6	8
18	3868	46	8
19	3905	30	8
20	39 7	− 14	8
21	−0 03933	+	+8
22	39 3	18	8
23	3897	35	8
24	3854	51	8
25	3796	65	7
26	−0 0037 4	+ 80	+7
27	3636	96	7
28	3533	109	7
29	3418	1 2	7
30	3 89	136	7
31	−0 003147	+148	+6
32	994	159	5
33	83	169	4
34	2656	178	5
35	474	187	5
36	−0 002 83	+194	+3
37	2086	200	3
38	1884	205	2
39	1677	09	2
40	1466	21	+1
41	−0 001254	+213	
42	1040	13	0
43	828	1	−1
44	617	210	1
45	409	207	
46	− 000203	+ 03	−3
47	− 4	197	3
48	+ 190	19	4
49	376	182	4
50	+0 000554	+173	−5

J	El Sh / Oc Tr (d)	Δ (3)	½Δ² (4)
50	+0 000554	+173	−5
51	72	163	5
52	880	153	6
53	10 7	141	6
54	1162	129	7
55	1284	115	7
56	+0 001392	+102	−7
57	1487	87	8
58	1566	72	8
59	1631	57	8
60	1680	41	8
61	+0 001713	+ 5	−8
62	1730	+ 10	8
63	173	− 7	8
64	1717	23	8
65	1686	39	8
66	+0 001640	− 55	−8
67	1577	70	7
68	1501	84	7
69	1409	99	7
70	1303	113	7
71	+0 001183	−1 7	−7
72	1050	139	6
73	905	151	6
74	749	162	5
75	58	17	5
76	+0 000406	−180	−4
77	2	189	4
78	+ 29	196	3
79	− 170	02	3
80	374	206	2
81	−0 000581	−209	−2
82	79	21	−1
83	1 05	213	0
84	1 18	13	0
85	1431	21	+1
86	−0 0 1642	−210	+1
87	1850	206	3
88	2 53	200	3
89	2 5	195	3
90	244	188	4
91	−0 002626	−180	+4
92	801	171	5
93	2967	161	5
94	31	150	6
95	3266	138	6
96	−0 003397	−1 5	+7
97	3515	112	7
98	36 0	98	7
99	3710	83	8
100	−0 003786	− 68	+8

J	Ecl Sh / Oc Tr (d)	Δ (3)	½Δ² (4)
100	−0 0 3786	− 68	+8
101	3846	53	8
102	3891	37	8
103	39 0	1	8
104	3933	− 5	8
105	3930	+ 11	8
106	−0 003911	+ 28	+8
107	3875	44	8
108	38 3	59	7
109	3758	73	7
110	3677	88	8
111	−0 003582	+103	+7
112	3471	117	7
113	3348	130	7
114	3212	143	6
115	3063	154	5
116	−0 002904	+164	+5
117	2735	174	5
118	556	183	4
119	2369	191	4
120	2175	197	3
121	−0 001975	+203	+3
122	1770	08	2
123	1560	11	+1
124	1348	13	0
125	1135	213	0
126	−0 000922	+ 1	−1
127	711	211	1
128	500	209	
129	294	204	2
130	− 92	200	3
131	+0 000105	+193	−4
132	94	186	4
133	476	178	5
134	649	168	5
135	811	158	6
136	+0 000964	+146	−6
137	1103	134	6
138	1232	122	7
139	1346	108	7
140	1447	94	7
141	+0 001533	+ 79	−8
142	1604	64	8
143	1660	48	8
144	1701	33	8
145	17 5	+ 16	8
146	+0 001733	0	−8
147	1725	− 15	8
148	1703	31	8
149	1663	48	8
150	+0 001607	− 63	−8

J	Ecl Sh / Oc Tr (d)	Δ (3)	½Δ² (4)
150	+0 001607	− 63	−8
151	1537	78	8
152	145	93	7
153	135	107	7
154	1239	121	7
155	1111	133	6
156	+0 000973	−146	−6
157	820	158	5
158	658	169	5
159	485	177	4
160	305	185	4
161	+0 000116	−193	−4
162	− 81	199	3
163	82	204	
164	488	208	2
165	698	12	−1
166	−0 000911	− 13	0
167	1124	213	0
168	1337	12	+1
169	1549	210	1
170	1757	07	2
171	−0 001963	−2 3	+2
172	2163	198	3
173	2358	191	4
174	2545	183	4
175	7 4	175	4
176	−0 002894	−166	+5
177	3055	156	6
178	3205	143	7
179	3340	130	7
180	3464	118	7
181	−0 003575	−104	+7
182	3672	90	7
183	3754	75	8
184	3822	60	8
185	3874	43	8
186	−0 003908	− 7	+8
187	39 7	− 13	8
188	3933	+ 3	8
189	39 2	20	8
190	3894	37	8
191	−0 003848	+ 53	+7
192	3789	67	7
193	3714	8	7
194	3625	97	7
195	3521	111	7
196	−0 003404	+124	+6
197	3273	137	6
198	3130	149	6
199	2976	160	5
200	−0 002811	+170	+5

Appli d C ta t oo oo Tl E t y must b ppl m t d by th Eq ti f m T bl LIII LX Th wh l m t b rr t d by ddi g t it it p d t by th V ri ti d wn f m T bl XXVI XXIX F Sh d d T it itm t l b t d f J pi Ph by T bl LXI

SATELLITE IV

Tables of the Phenomena

Reductions to Middle

LIII

1	2	3	1	2	3
K	Ecl., Oc., Sh., Tr.	Δ	K	Ecl., Oc., Sh., Tr.	Δ
d	d		d	d	
0·0	0·000750	− 47	5·0	0·001115	+ 39
0·1	703	47	5·1	1153	37
0·2	656	47	5·2	1188	34
0·3	610	46	5·3	1220	31
0·4	564	45	5·4	1250	29
0·5	520	44	5·5	1277	26
0·6	0·000477	− 43	5·6	0·001301	+ 23
0·7	435	41	5·7	1322	20
0·8	395	39	5·8	1340	16
0·9	357	37	5·9	1354	13
1·0	322	34	6·0	1365	9
1·1	0·000289	− 32	6·1	0·001372	+ 5
1·2	258	30	6·2	1375	+ 2
1·3	230	26	6·3	1376	− 1
1·4	206	23	6·4	1373	5
1·5	184	21	6·5	1366	9
1·6	0·000165	− 17	6·6	0·001356	− 12
1·7	150	14	6·7	1342	16
1·8	138	10	6·8	1325	19
1·9	130	7	6·9	1305	22
2·0	125	− 3	7·0	1281	25
2·1	0·000124	0	7·1	0·001255	− 28
2·2	126	+ 4	7·2	1226	31
2·3	132	8	7·3	1194	34
2·4	141	11	7·4	1159	36
2·5	154	15	7·5	1122	38
2·6	0·000170	+ 18	7·6	0·001083	− 40
2·7	189	21	7·7	1042	42
2·8	212	25	7·8	1000	43
2·9	238	28	7·9	956	45
3·0	267	30	8·0	910	46
3·1	0·000298	+ 33	8·1	0·000864	− 46
3·2	332	35	8·2	818	47
3·3	368	37	8·3	771	47
3·4	406	39	8·4	724	47
3·5	446	41	8·5	677	47
3·6	0·000488	+ 43	8·6	0·000630	− 47
3·7	532	45	8·7	584	46
3·8	577	46	8·8	539	45
3·9	623	46	8·9	495	43
4·0	669	47	9·0	453	42
4·1	0·000716	+ 47	9·1	0·000412	− 40
4·2	763	47	9·2	373	38
4·3	810	47	9·3	337	35
4·4	857	47	9·4	303	33
4·5	903	46	9·5	272	31
4·6	0·000948	+ 45	9·6	0·000242	− 28
4·7	992	44	9·7	216	25
4·8	1035	42	9·8	192	22
4·9	1076	40	9·9	172	18
5·0	0·001115	+ 39	10·0	0·000156	− 14

Applied Constant: $+0^{d}{\cdot}000750$.

LIV

1	2	3
L	Ecl., Oc., Sh., Tr.	Δ $0^{d}{\cdot}1$
d	d	
0·0	0·000100	+ 6
0·2	111	5
0·4	120	5
0·6	130	5
0·8	139	4
1·0	146	4
1·2	0·000153	+ 3
1·4	159	3
1·6	164	2
1·8	167	+ 1
2·0	168	0
2·2	0·000168	− 1
2·4	166	1
2·6	163	2
2·8	158	3
3·0	153	3
3·2	0·000146	− 4
3·4	138	5
3·6	128	5
3·8	118	5
4·0	109	5
4·2	0·000098	− 5
4·4	89	5
4·6	78	5
4·8	69	5
5·0	60	4
5·2	0·000053	− 4
5·4	46	3
5·6	40	3
5·8	36	2
6·0	33	− 1
6·2	0·000032	0
6·4	33	+ 1
6·6	34	1
6·8	38	2
7·0	42	3
7·2	0·000048	+ 3
7·4	55	4
7·6	64	5
7·8	73	5
8·0	82	5
8·2	0·000093	+ 5
8·4	103	5
8·6	113	5
8·8	123	5
9·0	132	5
9·2	0·000141	+ 4
9·4	149	4
9·6	155	3
9·8	160	2
10·0	0·000164	+ 2

Applied Constant: $+0^{d}{\cdot}000100$.

SATELLITE IV

Tables of the Phenomena

Reductions to Middle

LV

M	Ecl Oc Sh Tr	M	Ecl Oc Sh T
d	d		d
0 0	0 000050	10 0	0 000017
0 2	45	10 2	17
0 4	40	10 4	16
0 6	35	10 6	16
0 8	30	10 8	17
1 0	26	11 0	18
1 2	0 000023	11 2	0 000021
1 4	20	11 4	4
1 6	18	11 6	8
1 8	17	11 8	3
2 0	16	12 0	37
2 2	0 000016	12 2	0 000042
2 4	17	12 4	47
2 6	18	12 6	53
2 8	20	12 8	57
3 0	23	13 0	62
3 2	0 0000 7	13 2	0 000067
3 4	31	13 4	71
3 6	36	13 6	75
3 8	41	13 8	78
4 0	46	14 0	81
4 2	0 000051	14 2	0 000083
4 4	56	14 4	85
4 6	61	14 6	84
4 8	66	14 8	84
5 0	70	15 0	83
5 2	0 000074	15 2	0 000081
5 4	77	15 4	78
5 6	80	15 6	75
5 8	82	15 8	71
6 0	84	16 0	67
6 2	0 000085	16 2	0 000063
6 4	84	16 4	58
6 6	83	16 6	53
6 8	82	16 8	48
7 0	79	17 0	42
7 2	0 000076	17 2	0 000037
7 4	72	17 4	33
7 6	68	17 6	29
7 8	64	17 8	24
8 0	59	18 0	21
8 2	0 000054	18 2	000018
8 4	49	18 4	17
8 6	43	18 6	17
8 8	38	18 8	17
9 0	34	19 0	16
9 2	0 000030	19 2	0 000016
9 4	25	19 4	17
9 6	22	19 6	18
9 8	19	19 8	2
10 0	0 000017	20 0	0 000025

Appli d C ta t + 00005

LVI

E	Ecl Oc Sh Tr
d	
0 0	0 00 050
0 5	55
1 0	60
1 5	65
2 0	69
2 5	73
3 0	0 000075
3 5	77
4 0	78
4 5	78
5 0	77
5 5	0 000075
6 0	72
6 5	68
7 0	64
7 5	59
8 0	0 000054
8 5	48
9 0	43
9 5	38
10 0	34
10 5	0 000030
11 0	6
11 5	4
12 0	3
12 5	
13 0	0 000022
13 5	4
14 0	6
14 5	29
15 0	33
15 5	0 000038
16 0	43
16 5	48
17 0	53
17 5	58
18 0	0 000063
18 5	68
19 0	71
19 5	74
20 0	0 000077

C t t + 00005

LVII

I	Ecl Oc
1850	0 000177
60	179
70	181
80	181
90	18
1900	182
1910	0 000183
20	186
30	189
40	194
50	201
1960	0 000209
70	218
80	226
90	234
2000	0 000240

C t t + 000 5
p t f tl Eq tl f Ligl t l
f l l d

LVIII

I	Sh Tr
	d
1850	0 000123
60	121
70	119
80	119
90	118
1900	118
1910	0 000117
20	114
30	111
40	106
50	99
1960	0 000091
70	82
80	74
90	66
2000	0 000060

C t t + 000 5
A p rt f th Eq tl f Ligl l
f l d d

SATELLITE IV

Tables of the Phenomena

Equation of the Reduction

LIX — Oc., Tr.

γ \ J	$0^d{\cdot}0$	$0^d{\cdot}5$	$1^d{\cdot}0$	$1^d{\cdot}5$	$2^d{\cdot}0$	$2^d{\cdot}5$	$3^d{\cdot}0$	$3^d{\cdot}5$	$4^d{\cdot}0$	$4^d{\cdot}5$	$5^d{\cdot}0$	$5^d{\cdot}5$	$6^d{\cdot}0$	$6^d{\cdot}5$	$7^d{\cdot}0$	$7^d{\cdot}5$	$8^d{\cdot}0$	$8^d{\cdot}5$	$9^d{\cdot}0$
d 0	± 17	± 17	± 16	± 14	± 12	± 10	± 8	± 5	± 1	∓ 2	∓ 5	∓ 8	∓ 11	∓ 13	∓ 15	∓ 16	∓ 17	∓ 17	∓ 17
10	±109	107	101	92	79	64	46	28	± 8	∓ 13	34	51	69	84	95	103	109	109	∓106
20	±197	193	182	166	144	116	84	49	±13	∓ 24	60	94	125	151	171	186	195	196	∓191
30	±280	274	259	236	204	164	119	70	±19	∓ 34	85	134	178	214	244	265	278	279	∓271
40	±354	347	328	298	258	208	151	88	±23	∓ 44	108	169	225	271	308	335	351	352	∓342
50	±418	409	388	352	305	245	178	104	±28	∓ 51	127	200	265	321	365	397	415	416	∓410
60	±470	460	435	395	343	275	199	116	±31	∓ 57	144	224	298	360	409	445	466	468	∓454
70	±507	497	470	427	370	298	216	126	±33	∓ 63	155	243	322	388	443	483	503	505	∓490
80	±530	519	492	446	387	311	226	132	±35	∓ 65	163	253	336	406	463	502	526	528	∓513
90	±537	526	498	452	392	316	229	134	±35	∓ 66	164	257	341	412	469	509	533	535	∓520
100	±528	517	490	445	386	311	225	131	±34	∓ 65	161	252	336	404	461	502	524	526	∓511
110	±504	494	467	425	368	295	215	125	±33	∓ 62	155	241	319	387	440	477	500	502	∓487
120	±464	455	431	392	339	273	198	116	±30	∓ 57	142	222	295	357	405	440	461	462	∓449
130	±412	403	382	347	301	242	176	103	±27	∓ 50	126	197	262	316	360	390	409	410	∓399
140	±347	340	322	292	252	203	148	87	±22	∓ 42	106	166	220	266	303	328	344	345	∓335
150	±272	266	252	229	198	160	115	68	±17	∓ 33	83	130	173	209	238	257	270	271	∓263
160	±188	184	175	159	138	111	80	47	±12	∓ 24	57	90	120	144	164	178	187	187	∓182
170	± 98	96	92	83	72	58	42	25	± 6	∓ 13	30	47	63	76	86	94	98	98	∓ 96
180	± 9	± 8	± 8	± 7	± 7	± 6	± 4	± 2	0	∓ 1	∓ 3	∓ 5	∓ 6	∓ 7	∓ 8	∓ 8	∓ 9	∓ 9	∓ 8
190	∓ 83	∓ 82	∓ 78	∓ 71	∓ 61	∓ 48	∓ 36	∓20	∓ 6	± 10	±26	±40	± 53	± 64	± 73	± 80	± 83	± 83	± 82
200	∓173	169	160	146	126	101	74	43	∓12	± 21	54	83	110	132	151	164	172	173	±168
210	∓258	253	239	217	189	151	110	64	∓17	± 32	80	123	164	198	226	245	256	257	±250
220	∓335	328	310	283	244	197	143	83	∓22	± 41	102	157	213	257	292	317	332	334	±324
230	∓403	394	373	339	294	235	171	100	∓26	± 50	123	192	255	308	351	381	399	401	±389
240	∓457	448	424	385	334	269	194	114	∓30	± 56	140	219	290	350	399	433	454	455	±442
250	∓499	489	463	420	364	293	212	124	∓33	± 61	152	239	317	382	435	472	495	497	±483
260	∓526	515	488	443	384	308	223	131	∓34	± 65	161	251	334	402	459	498	522	524	±509
270	∓537	526	498	452	392	318	229	134	∓35	± 66	164	257	341	412	469	509	533	535	±520
280	∓532	521	493	448	389	312	226	132	∓35	± 65	163	255	338	408	465	504	528	530	±515
290	∓512	498	474	431	373	300	218	127	∓33	± 63	157	245	325	392	447	485	508	510	±495
300	∓476	467	442	401	347	279	203	118	∓31	± 59	145	228	302	365	416	452	473	474	±460
310	∓427	418	397	359	312	251	181	106	∓28	± 52	131	205	272	327	373	405	424	425	±414
320	∓365	358	339	307	267	214	156	91	∓23	± 45	112	174	231	280	318	346	362	363	±353
330	∓292	286	271	246	213	171	125	73	∓19	± 36	89	140	185	224	256	277	290	291	±282
340	∓211	206	195	177	153	123	90	52	∓13	± 27	64	101	134	162	184	200	209	210	±204
350	∓122	120	113	102	89	72	51	30	∓ 8	± 15	37	58	78	94	107	115	121	121	±118
360	∓ 31	∓ 31	∓ 30	∓ 27	∓ 23	∓ 19	∓ 13	∓ 7	∓ 2	± 4	±10	± 15	± 20	± 25	± 28	± 30	± 31	± 31	± 31
370	± 61	± 60	± 56	± 49	± 44	± 36	± 26	±15	± 4	∓ 7	∓19	∓ 29	∓ 39	∓ 47	∓ 53	∓ 58	∓ 61	∓ 61	∓ 59
380	±151	148	140	127	109	88	64	38	±10	∓18	46	72	96	116	131	143	150	150	∓146
390	±237	232	220	200	173	138	101	60	±16	∓29	73	113	150	182	207	227	235	236	∓229
400	±316	±310	±293	±267	±230	±185	±134	±79	±21	∓40	∓96	∓150	∓200	∓243	∓276	∓300	∓314	∓315	∓306

No Constant has been applied. The unit equals $0^d{\cdot}00001$. The upper sign applies for Occultations, the lower for Transits.

Tables of the Phenomena

LIX *continued* — **Equation of the Reduction** — **Oc, Tr**

γ \ J	9.0	9.5	$10^{d}.0$	10.5	$11^{d}.0$	$11^{d}.5$	$12^{d}.0$	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0
0	∓ 17	∓ 15	∓ 14	∓ 12	∓ 9	∓	∓4	0	± 3	± 6	± 9	± 11	± 13	± 15	± 17	± 17	± 17	± 16	± 15
10	∓106	99	89	75	58	41	21	∓ 1	±19	39	58	74	88	98	106	109	108	104	± 96
20	∓191	179	160	135	106	74	38	∓ 1	±35	71	105	133	158	177	190	196	195	187	±174
30	∓ 71	253	228	192	151	105	54	∓	±50	1 1	148	190	2 4	251	71	279	78	67	± 46
40	∓34	3 0	87	243	191	13	68	∓ 3	±64	127	187	41	94	318	34	35	350	337	±31
50	∓410	378	340	287	25	156	81	∓ 3	±75	150	2	283	336	376	404	416	413	398	±368
60	∓454	425	381	322	253	175	91	∓ 3	±84	169	249	318	376	42	454	467	465	447	±413
70	∓490	459	411	348	274	190	99	∓ 4	±91	183	69	344	407	455	490	504	50	483	±446
80	∓513	480	430	364	86	198	103	∓ 4	±)5	192	81	359	426	477	51	5 7	5 5	504	±467
90	∓520	486	436	369	290	201	104	∓ 4	±97	194	85	364	431	483	519	534	53	511	±473
100	∓511	478	42)	363	285	197	102	∓ 4	±95	191	281	358	4 4	475	510	5 5	5 2	50	±465
110	∓487	456	409	347	272	188	97	∓ 3	±92	182	267	342	405	453	487	501	498	480	±444
120	∓449	421	378	318	250	173	90	∓ 3	±84	166	46	315	373	417	448	461	460	443	±409
130	∓399	373	334	282	222	153	80	∓ 3	±74	149	18	280	331	370	398	409	408	392	±363
140	∓335	313	281	238	186	130	67	∓ 2	±6	124	184	235	78	31	335	345	343	33	±305
150	∓263	246	221	186	146	101	53	∓ 2	±49	98	144	185	218	244	6	71	0	59	± 40
160	∓18	171	153	1 9	102	71	36	∓ 1	±34	67	100	1 8	151	169	18	187	187	180	±165
170	∓ 96	90	80	68	54	37	19	0	±18	36	5	67	78	89	95	98	97	94	± 87
180	∓ 8	∓ 8	∓ 7	∓ 6	∓ 5	∓ 4	∓ 1	0	± 1	± 3	± 5	± 6	± 7	± 8	± 8	± 9	± 9	± 8	± 8
190	± 82	± 76	± 68	± 57	± 45	± 31	±17	± 1	∓15	∓ 30	∓ 44	∓ 57	∓ 67	∓ 75	∓ 81	∓ 83	∓ 83	∓ 8	∓ 73
200	±168	157	141	119	93	65	34	± 1	∓31	62	92	118	139	155	167	172	172	165	∓153
210	±250	234	210	1 8	140	97	50	± 2	∓46	93	137	175	07	232	249	257	56	246	∓ 8
220	±324	303	272	229	181	125	65	± 2	∓60	121	177	228	269	3 0	3 4	333	33	319	∓295
230	±389	362	327	276	197	151	78	± 3	∓73	145	214	273	322	361	389	400	399	383	∓354
240	±442	414	371	314	246	171	88	± 3	∓83	164	242	310	367	411	442	455	454	436	∓40
250	±483	452	405	342	269	184	97	± 3	∓90	180	265	338	401	448	482	496	494	475	∓439
260	±509	476	427	361	283	197	102	± 4	∓95	190	279	356	4 2	473	508	523	520	500	∓463
270	±520	486	436	369	90	201	104	± 4	∓97	194	85	364	431	483	519	534	532	511	∓473
280	±515	482	432	366	286	198	103	± 4	∓96	192	83	361	427	479	514	529	527	506	∓469
290	±495	464	416	351	276	191	99	± 4	∓92	185	271	349	411	460	495	509	507	487	∓451
300	±460	431	386	326	257	178	93	± 3	∓86	172	253	323	383	428	460	473	471	454	∓42
310	±414	387	347	294	231	159	83	± 3	∓77	153	2 7	290	343	384	413	4 5	423	407	∓377
320	±353	330	296	250	197	136	71	± 2	∓66	132	194	48	293	328	353	363	361	348	∓3 1
330	±282	264	237	200	158	109	57	± 2	∓53	106	155	199	235	263	82	90	289	278	∓ 58
340	± 04	190	171	144	114	79	41	± 1	∓39	76	112	143	169	189	204	209	09	201	∓185
350	±118	111	99	84	66	45	23	0	∓2	44	65	83	98	110	118	121	121	116	∓1 8
360	± 31	± 29	± 25	± 22	± 17	± 12	± 6	0	∓ 6	∓ 12	∓ 16	∓ 21	∓ 5	∓ 28	∓ 30	∓ 31	∓ 31	∓ 30	∓ 8
370	∓ 59	∓ 55	∓ 50	∓ 41	∓ 33	∓ 23	∓12	∓ 1	±10	± 22	± 33	± 42	± 49	± 56	± 59	± 61	± 60	± 58	± 53
380	∓146	136	122	103	81	54	29	∓ 1	±27	54	80	102	121	135	146	150	150	144	±132
390	∓229	215	192	163	128	88	47	∓ 2	±42	85	126	161	190	213	229	35	234	226	±209
400	∓306	∓286	∓257	∓217	∓170	∓118	∓61	∓ 2	±57	±114	±167	±214	±254	±284	±305	±314	±313	±301	±278

N C stant has b ppli d Th it q l ooooo Th pp ign ppli f O lt ti th l w f T it

INTRODUCTION

THE following Tables aie designed for calculating the positions and phenomena of the Four Great Satellites of Jupiter between the dates 1850 and 2000 The constants upon which they aie based are those derived from a discussion of eclipses obseived photometrically at Harvard College Observatory from 1878 to 1903 (*Harvard Annals* vol LII parts 1 2) supplemented for the deteimination of two secular motions by Delambre s collection of ancient eclipses (*Mem Roy Astronom Soc* vol LIX) The expressions which are tabulated iepresent a theory of the motions which I hope to publish with no avoidable delay The notation and results of this theoiy are rehearsed here only so far as they are necessary for understanding the tables but the reader must iefer to the later publication for full details including proofs of rules laid down and derivation of all the numbers

The inequalities of the satellites motions and the arguments of these depend upon the masses m and upon ceitain coefficients $j = (1 + m) J b / a$ which arise from Jupiter s figure $-$J being the coefficient which Laplace denotes by $\rho - \frac{1}{2}\phi$ b the equatorial radius of Jupiter and a the mean value of the projection of the radius vector of the i^{th} Satellite upon Jupiter s equator I find at Jupiter s mean distance $b = 18 \ 927$ and with the values of a given below p xv and the mass of Jupiter as unit

$$\begin{aligned} J &= 022273 \\ m &= 00004497 \\ m &= 2536 \\ m &= 7988 \\ m &= 4504 \end{aligned}$$

With these masses I find the period of the Libration of Satellites I II III to be 2041^{d} 467 I cannot find that the libiation itself reaches any sensible amount but the value of its period affects materially the distribution of the larger inequalities between the three satellites

The co ordinates of the satellites are referred to the centre of Jupiter as origin

The longitudes which are given on the next page are measured from a parallel to the mean equinox of 1900 along a plane parallel to the mean ecliptic of that date up to the ascending node at 99 4244 of a fixed plane of inclination 1 3098 and thereafter along this fixed plane This fixed plane is virtually the plane of Jupiter s instantaneous orbit of 1900 and when reference is made below to the inclination of Jupiter s equator or of a satellite s radius vector to Jupiter s orbit it is this plane which is meant It is for the purposes of the Tables only that longitudes are reduced to this plane for the greater part of the theory they are measured along Jupiter s moving equator from a certain departure point Denoting by $l = n t + \epsilon$ the mean longitude so measured and by π ω the longitudes of the perijove and node which arise as constants of integration in the forms given to the equations of motion of the i^{th} Satellite I distinguish by brackets (ϵ) (π) (ω) the corresponding values to which the necessary reduction has been applied for referring them to the chosen fixed plane

The arguments that occur in the Tables are then combinations of the following quantities :—

Name	Symbol	Value in 1900·0 G.M.T.	Daily Tropical Motion
Mean Longitude : Satellite I	(ϵ_1)	$142^\circ{\cdot}59987$	$203^\circ{\cdot}488\ 992\ 435$
Satellite II	(ϵ_2)	99·55081	101·374 761 672
Satellite III	(ϵ_3)	168·02628	50·317 646 290
Satellite IV	(ϵ_4)	234·40790	21·571 109 630
Longitude of Perijove : Satellite I	(π_1)	265·719	+ ·157 9355
Satellite II	(π_2)	196·534	+ ·047 1156
Satellite III	(π_3)	340·679	+ ·006 9513
Satellite IV	(π_4)	283·25800	+ ·001 8975
Longitude of Node : Satellite I	(ω_1)	33·299	— ·134 0305
Satellite II	(ω_2)	290·54986	— ·032 6993
Satellite III	(ω_3)	320·705	— ·006 9776
Satellite IV	(ω_4)	7·331	— ·001 7554
Longitude Node of Jupiter's Equator	Ψ	316·051	+ ·000 0359
Mean Anomaly of Jupiter	G	225·4447	[+ ·083 0912]
,, ,, ,, Saturn	G′	175·7586	[+ ·033 4598]
,, ,, ,, Earth	G_1	358·47	[+ ·985 6005]
Longitude of Perihelion of Jupiter	Π	12·6055	+ ·000 0382
,, ,, ,, ,, Earth	Π_1	101·22	+ ·000 0471

Note.—The motions of G, G′, G_1 are enclosed in [ ] because they are not tropical motions. Π is the longitude of fixed point, and the motion assigned to it is merely the reflexion of the motion of the equinox. The values of Π, G are taken from Hill's *Tables of Jupiter*.

It will be observed that

$$n_1 - 3n_2 + 2n_3 = 0$$
$$(\epsilon_1) - 3(\epsilon_2) + 2(\epsilon_3) = 180^\circ.$$

In agreement with the notation of the theory, write

$$d_{12} = l_1 - l_2,\ d_{13} = l_1 - l_3,\ \ldots\ d_{10} = l_1 - G - \delta G - \Pi,$$
$$\text{whence } d_{12} - 2d_{23} = 180^\circ = d_{13} - 3d_{23};$$
$$g_1 = l_1 - \pi_1,\ g_2 = l_1 - \pi_2,\ \ldots$$
$$g_1' = l_2 - \pi_1,\ g_2' = l_2 - \pi_2,\ \ldots$$
$$g_1'' = l_3 - \pi_1,\ \ldots$$
$$g_1''' = l_4 - \pi_1,\ \ldots$$
$$f_1 = g_1 - 2g_1' = 180^\circ + g_1' - 2g_1'' = 180^\circ + f_1',\ \ldots$$
$$h_0 = l_1 - \Psi,\ h_1 = l_1 - \omega_1,\ h_2 = l_1 - \omega_2,$$
$$h_0' = l_2 - \Psi,\ h_1' = l_2 - \omega_1,\ h_2' = l_2 - \omega_2,\ \ldots$$
$$h_0'' = l_3 - \Psi,\ \ldots$$
$$h_0''' = l_4 - \Psi,\ \ldots$$
$$H = G + \delta G + \Pi - \Psi,\ \Lambda = \Pi - \Psi,\ D = G_1 + \Pi_1 - G - \delta G - \Pi,\ H_1 = G_1 + \Pi_1 - \Omega + 180^\circ.$$

In these expressions, and below, G is supplemented by a quantity δG, which consists of the two chief inequalities of long period of Jupiter's mean anomaly as given in Hill's *Tables* (pp. 24, 25), namely those of arguments 2G′ − G and 5G′ − 2G.

Equations of Longitude

The following equations are the quantities which must be added to the mean to give the true longitude of the Satellite, and include all inequalities of which I find the coefficient to

reach 1′ as well as some others the retention of which does not involve the introduction of an additional argument

Satellite I

No	Argument	Notation of Tables	Coefficient of Sine	No	Arg ment	Notation of Tables	Coefficient of Sine
1	d	A	−0 00395	15	f	F	−0 00720
2	$2d$		+ 47152	16	f	G	+ 00394
3	$3d$		+ 00158	17	f	H	+ 00906
4	$4d$		+ 00155	18	f	I	+ 00354
5	$5d$		+ 00012	19	$G+\delta G$	J	− 00155
6	$6d$		+ 00005	20	$2(G+\delta G)$		+ 00035
7	$7d$		+ 00002	21	$\Psi-\omega$		− 00074
8	d	B	− 00158	22	$\Psi-\omega$		+ 00020
9	$2d$		+ 00133	3	$\Psi-\omega_3$		+ 00077
10	$3d$		+ 00014	24	$\Psi-\omega$		− 00035
11	$4d$		+ 00002	25	$\omega-\omega$		+ 00096
12	g	C	+ 00532	26	$2h$	K	− 04200
13	g_3	D	+ 00426	27	$h+h$	P	− 00074
14	g_4	E	+ 00190	28	$h+h$	Q	− 00028

Satellite II

No	Arg ment	Notation of Tables	Coeffic ent of S ne	No	Aig ment	Notation of Tables	Coefficient of Sine
1	d	A	−0 01182	19	$2d_3+g_3$	K	+0 00031
2	$2d_3$		+1 07016	20	$4d-g$	L	− 00027
3	$3d$		+ 00480	21	$4d-g_3$	M	+ 00199
4	$4d$		+ 00541	22	$4d-g$	N	+ 00083
5	$5d$		+ 00038	23	$2d$	O	+ 00034
6	$6d$		+ 00054	24	$G+\delta G$	P	− 01047
7	$7d_3$		+ 00007	25	$2(G+\delta G)$		− 00117
8	d_4	B	− 00065	26	$5G-2G+48\ 6$		− 00085
9	$2d_4$		+ 00045	27	$\pi-\pi$		+ 00046
10	$3d_4$		+ 00005	28	$\Psi-\omega$		− 01265
11	g	C	+ 00092	29	$\Psi-\omega_3$		− 00196
12	g	D	+ 00945	30	$\Psi-\omega_4$		+ 00092
13	g_3	E	+ 03526	31	$\omega-\omega_3$		+ 00033
14	g	F	+ 01483	32	$\omega-\omega$		+ 00056
15	f	G	+ 01141	33	$2h$	Q	− 04159
16	f	H	+ 00765	34	$h+h$	R	− 01265
17	f	I	− 04455	35	$h+h_3$	S	− 00067
18	f_4	J	− 01798	36	$h+h_4$	T	− 00016
				37	$2h$	U	− 00096

Tables of the Four Great Satellites of Jupiter

Satellite III

No.	Argument	Notation of Tables	Coefficient of Sine
1	d_{23}	A	$-0^\circ{\cdot}06898$
2	$2d_{23}$	..	$-\ {\cdot}00109$
3	$3d_{23}$	..	$-\ {\cdot}00120$
4	$4d_{23}$	..	$-\ {\cdot}00007$
5	$5d_{23}$	..	$-\ {\cdot}00003$
6	$6d_{23}$	..	$-\ {\cdot}00004$
7	d_{34}	B	$-\ {\cdot}00429$
8	$2d_{34}$	..	$+\ {\cdot}01467$
9	$3d_{34}$	..	$+\ {\cdot}00103$
10	$4d_{34}$	..	$+\ {\cdot}00024$
11	$5d_{34}$	..	$+\ {\cdot}00007$
12	g_2''	C	$-\ {\cdot}00030$
13	g_3''	D	$+\ {\cdot}17384$
14	$2g_3''$	..	$+\ {\cdot}00017$
15	g_4''	E	$+\ {\cdot}07377$
16	$2d_{23}-g_3''$	F	$-\ {\cdot}00078$
17	$2d_{23}-g_4''$	G	$-\ {\cdot}00035$

No.	Argument	Notation of Tables	Coefficient of Sine
18	$2d_{30}-g_3''$	H	$+0^\circ{\cdot}00054$
19	$d_{34}-g_4'''$	I	$-\ {\cdot}00604$
20	f_1'	J	$-\ {\cdot}00036$
21	f_2'	K	$-\ {\cdot}00332$
22	f_3'	L	$+\ {\cdot}00673$
23	f_4'	M	$+\ {\cdot}00293$
24	$G+\delta G$	α	$-\ {\cdot}01345$
25	$2(G+\delta G)$	..	$-\ {\cdot}00041$
26	$5G'-2G+48^\circ{\cdot}6$	N	$-\ {\cdot}00119$
27	$\pi_3-\pi_4$	..	$+\ {\cdot}00069$
28	$\Psi-\omega_2$	..	$+\ {\cdot}00044$
29	$\Psi-\omega_3$	..	$-\ {\cdot}00672$
30	$\Psi-\omega_4$	..	$+\ {\cdot}00060$
31	$\omega_3-\omega_4$	..	$+\ {\cdot}00096$
32	$2h_0''$	O	$-\ {\cdot}03969$
33	$h_0''+h_2''$	P	$+\ {\cdot}00044$
34	$h_0''+h_3''$	Q	$-\ {\cdot}00469$
35	$h_0''+h_4''$	R	$-\ {\cdot}00095$

Satellite IV

No.	Argument	Notation of Tables	Coefficient of Sine
1	d_{14}	A	$+0^\circ{\cdot}00058$
2	d_{24}	B	$+\ {\cdot}00051$
3	d_{34}	C	$-\ {\cdot}00229$
4	$2d_{34}$	..	$-\ {\cdot}00115$
5	$3d_{34}$	..	$-\ {\cdot}00025$
6	$4d_{34}$	..	$-\ {\cdot}00007$
7	g_3'''	D	$-\ {\cdot}02079$
8	g_4'''	E	$+\ {\cdot}84491$
9	$2g_4'''$	..	$+\ {\cdot}00388$
10	$d_{34}-g_4'''$	F	$+\ {\cdot}00100$
11	$2d_{40}$	G	$+\ {\cdot}00119$

No.	Argument	Notation of Tables	Coefficient of Sine
12	$2d_{40}-g_4'''$	H	$+0^\circ{\cdot}00635$
13	$G+\delta G$	α	$-\ {\cdot}03216$
14	$2(G+\delta G)$	..	$-\ {\cdot}00116$
15	$2G'-G+173^\circ{\cdot}17$	I	$+\ {\cdot}00036$
16	$5G'-2G+48^\circ{\cdot}64$	..	$-\ {\cdot}00281$
17	$\Psi-\omega_3$	..	$+\ {\cdot}00080$
18	$\Psi-\omega_4$	..	$-\ {\cdot}00200$
19	$2h_0'''$	J	$-\ {\cdot}03118$
20	$h_0'''+h_4'''$	K	$-\ {\cdot}00641$
21	$h_0'''+h_3'''$	L	$+\ {\cdot}00068$
22	$2h_4'''$	M	$-\ {\cdot}00030$

Radius Vector and Variation of Motion

With the mass of Jupiter for unity I find the following values for a^3n —

Sat I	Sat II	Sat III	Sat IV
1 0006884	1 0003631	1 0002550	1 000 651

If A N refer to Jupiter and we take

$$A N = 1048\ 35$$

this gives for a which is the mean value of the projection of the radius upon Jupiter s equator at Jupiter s mean distance from the earth —

111 781	177 852	283 694	498 981

The mean values of the true radius vector exceed these by the amounts —

0 000	0 003	0 001	0 009

The Tables give the inequalities of the radius vector in the form —Twice the excess above unity of the ratio of its projected value on the equator to the mean value of the same With sign reversed this also measures with sufficient accuracy the variation with respect to its mean of the motion of the Satellite It is denoted in the theory by the symbol 2ξ and is here referred to as the Variation

The expressions are as follows —

Values of $2(r\,/a - 1)$

Satellite I

No	Argument	Not t on of Tables	Coefficient of Cosine
1	d	A	+0 00004
2	$2d$		— 00825
3	$3d$		— 00004
4	$4d$		— 00003
5	d	B	+ 00002
6	$2d$		— 00003
7	g	C	— 00009
8	g	D	— 00007
9	g	E	— 00003

Satellite II

No	Argument	Notation of Tables	Coefficient of Cosine
1	d_3	A	+0 00011
2	$2d$		— 01886
3	$3d_3$		— 00011
4	$4d_3$		— 00006
5	g	D	— 00017
6	g_3	E	— 00062
7	g_4	F	— 00026

Satellite III

No	Argument	Notation of Tables	Coefficient of Cosine
1	d	A	+0 00127
2	$2d$		+ 00003
3	$3d$		— 00003
4	d_4	B	+ 00005
5	$2d_4$		— 00028
6	$3d$		— 00002
7	g	D	— 00303
8	g_4	E	— 00129

Satellite IV

No	Argument	Notation of Tables	Coefficient of Cosine
1	d_3	C	+0 00020
2	$2d_3$		+ 00004
3	g_3	D	+ 00036
4	g_4	E	— 01475
5	$2g_4$		— 00005
6	$2d_4 - g$	H	— 00011

Latitude

The quantity tabulated below is a certain multiple of the tangent of the inclination to Jupiter's orbit of the radius vector of the Satellite. This is the quantity that is immediately required for eclipses. The multiple in question depends, among other things, upon the ellipticity of Jupiter, that is, the excess of unity above the ratio of his polar to his equatorial diameter. This quantity I take at 1/15.

The multiples then become—

Sat. I	Sat. II	Sat. III	Sat. IV
6·26160	10·01855	16·00924	28·15626

and the expressions to which they lead :—

Values of ζ_i

Satellite I

No.	Argument	Notation of Tables	Coefficient of Sine
1	h_0	K	+0·33918
2	$3h_0$	..	— ·00012
3	h_1	L	+ ·00298
4	h_2	M	+ ·00110
5	h_3	N	+ ·00023
6	h_4	O	+ ·00006

Satellite II

No.	Argument	Notation of Tables	Coefficient of Sine
1	h_0'	Q	+0·54002
2	$3h_0'$	..	— ·00020
3	h_2'	U	+ ·08170
4	h_1'	V	— ·00014
5	h_3'	W	+ ·00437
6	h_4'	X	+ ·00103
7	$2d_{12}-h_2'$	Y	— ·00025
8	$h_0'-2H$	Z	+ ·00014
9	$2h_0'-h_2'$	Q,	+ ·00009
10	$2h_0'+h_2'$	U	— ·00009

Satellite III

No.	Argument	Notation of Tables	Coefficient of Sine
1	h_0''	O	+0·84334
2	$3h_0'''$	..	— ·00029
3	h_3''	S	— ·04983
4	h_2''	T	— ·00447
5	h_4''	U	+ ·00974
6	$h_0''-2H$	V	+ ·00051
7	$h_0''+G$	O,	+ ·00009
8	$h_0''-G$	a	— ·00007

Satellite IV

No.	Argument	Notation of Tables	Coefficient of Sine
1	h_0'''	J	+1·31486
2	$3h_0'''$	..	— ·00036
3	$h_0'''-2\Lambda$	..	— ·00108
4	h_4'''	M	+ ·13366
5	h_3'''	N	— ·01456
6	$h_0'''-2H$	O	+ ·00216
7	$h_0'''-3H+\Lambda$	P	+ ·00025
8	$h_0'''+G$	Q,	+ ·00030
9	$h_0'''-G$	R	— ·00029

In these expressions a rule has been adopted parallel to that for the equations of longitude: inequalities are dismissed which correspond to differences of inclination of less than one second of arc, when their recognition would require another argument. In the theory, the

expressions above are denoted by the symbol ζ in the Tables below supplemented by the usual tabulation constants they are called shortly the Latitudes The inclination of Jupiter s equator to the fixed plane of his orbit which they embody is 3 10350

The expressions for the Longitude Variation and Latitude are complete in themselves and may be used for finding the place of the Satellite at any given time but they require certain additional tables before they can be used for calculating the phenomena The first thing requisite is a knowledge of the time of conjunction heliocentric or geocentric superior or inferior The first tables for each Satellite which I shall next describe show approximately the times when these conjunctions occur

Mean Conjunctions

The synodic periods of the four Satellites I find to be

Satellite	I	1^{d} 769	860	4883
	II	3 554	094	1742
	III	7 166	387	2292
	IV	16 753	552	3007

With these the times of mean superior conjunction with Jupiter may be calculated between the epochs 1850 and 2000 but it is convenient to consider simultaneously with Jupiter s mean place his chief inequalities other than the equation of the centre Those with which I reckon are the following drawn from Hill s *Tables* —

Table VIII	Long Period
IX	Argument III G — G
X	, IV 5G — 3G
XI	V 2G — G
XII	VI 3G — 2G

these were calculated over the whole period and applied as corrections to Jupiter s mean place before the mean conjunctions were determined

Inferior mean conjunction is found from these by adding or subtracting one half the synodic period

Equations of True Conjunction

These equations consist of the various inequalities by which the time of mean conjunction may be anticipated or delayed the angular coefficient being expressed in time in proportion with the synodic motion namely at the rate for 1 of synodic motion —

Sat I	Sat II	Sat III	Sat IV
0^{d} 004916	0^{d} 009872	0^{d} 019907	0^{d} 046538

The inequalities are of three kinds (i) the equations of the centre of Jupiter (ii) for geocentric conjunctions Jupiter s annual parallax and (iii) the proper inequalities of the Satellite

The expression for Jupiter s equation of the centre is

$$+5\ 528 \sin (G+\delta G) + 0\ 167 \sin 2\,(G+\delta G)$$

I find the expression for the annual parallax

$$\begin{aligned} p = & -11\ 02 \sin D - 1\ 04 \sin 2D - 0\ 14 \sin 3D - 0\ 03 \sin 4D \\ & + \sin G\,(+1\ 06 \cos D + 0\ 20 \cos 2D) + \cos G\,(-0\ 55 \sin D - 0\ 12 \sin 2D) \\ & + \sin G\,(-0\ 38 \cos D - 0\ 07 \cos 2D) + \cos G\,(+0\ 19 \sin D + 0\ 04 \sin 2D) \end{aligned}$$

Tables of the Four Great Satellites of Jupiter

The symbols G or G + δG, D, G_1 are defined on p. xii. The symbols for them as arguments of the Tables are respectively α, β, γ.

These two expressions are converted into time by means of the factors for synodic motion given above.

The proper inequalities of the Satellites are converted into time in the same way. They occur here with the opposite sign to that which they show as equations of longitude. Those which it is necessary to recognise are the following :—

Satellite I

No.	Argument	Notation of Tables	Coefficient of Sine
1	$2d_{12}$	δ	d −0·0023
2	$2h_0$	ϵ	+0·0002

Satellite II

No.	Argument	Notation of Tables	Coefficient of Sine
1	$2d_{23}$	δ	d −0·0106
2	$2h_0'$	ϵ	+0·0004

Satellite III

No.	Argument	Notation of Tables	Coefficient of Sine
1	d_{23}	δ	d +0·0014
2	g_3''	ϵ	−0·0034
3	g_4''	ζ	−0·0014
4	$2h_0''$	η	+0·0008

Satellite IV

No.	Argument	Notation of Tables	Coefficient of Sine
1	g_4'''	δ	d −0·0391
2	$2h_0'''$	ϵ	+0·0014

These formulæ, which are used for the first tables of each Satellite, give the time of true conjunction approximately ; I shall now show how to determine the correction, or Complement, as it is called below, which is required to make it exact.

Using the approximate time just found as datum, we take out the true longitude of the Satellite upon Jupiter's orbit at this time from the Tables of Longitude, Latitude and Radius Vector.

To compare this with the place of Jupiter at the same time, we must take out the latter by help of the *Nautical Almanac*, where his heliocentric longitude for each noon is tabulated, referred to the ecliptic and mean equinox of date.* To make this comparable with the place of the Satellite the reduction from Jupiter's orbit to the ecliptic must be applied to it with sign reversed. As the latter is not given in the *Nautical Almanac*, I have added a table for it, drawn from Hill's *Tables of Jupiter*. The excess of the longitude of Jupiter thus corrected over the longitude of the Satellite, expressed in time in proportion with the Satellite's synodic motion, with the allowance, where this is sensible, for the variation of the motion from its mean, gives the Complement which must be added to the approximate time of datum to get the exact time of superior true heliocentric conjunction upon Jupiter's orbit. This is the conjunction required for eclipses. For shadow-transits we require inferior true heliocentric conjunction ; finding it approximately, as directed above, we make our comparison of the Satellite's

* But note that before 1897 the practice was to refer it to the *true* equinox, and therefore the nutation with sign reversed must be applied to the tabulated place.

longitude with that of Jupiter increased or diminished by 180 and the complement is determined in the same way as for superior conjunction For occultations we require superior geocentric conjunction the position of the Earth being reduced to Jupiter s orbit That is to say the longitude of the Satellite must be found as above *plus* the annual parallax with its natural sign positive before Jupiter s opposition negative after The annual parallax (p) may be computed from the data of the *Nautical Almanac* * by the formulæ

$$\sin \lambda = R \sin \lambda / \Delta \qquad \sin p = R \sin (☉ - ♃)/\Delta \cos \lambda$$

where λ is Jupiter s heliocentric latitude R his radius vector and Δ his true distance from the Earth R the radius vector of the Earth ☉ ♃ the longitudes of the Sun and Jupiter in a computing office it will be taken from the calculations of the geocentric places of the planet where it arises naturally In either case it requires a reduction from the ecliptic to Jupiter s orbit

The formulæ employed for the two reductions to Jupiter s orbit are the following where ☊ denotes the longitude of the ascending node of Jupiter s orbit —

Reduction of Jupiter s Longitude from Ecliptic to Orbit $+27\ 0 \sin 2\,(♃ - ☊)$
Reduction of Annual Parallax from Ecliptic to Orbit $+5\ 2 \cos D\,[\sin 2\,(☉ - ☊) + \sin 2(♃ - ☊)]$

These reductions are applied to the longitude of Jupiter heliocentric or geocentric before comparing it with the longitude of the Satellite to determine the complement

For transits of the disc across the planet s face the steps are the same except that we require inferior geocentric conjunction in place of superior and must therefore compare the longitude of the Satellite with that of Jupiter increased by 180 in addition to the annual parallax

Having thus found the true time of conjunction the true time of the beginning or ending of any defined phase of one of the phenomena of eclipse occultation shadow transit or disc transit is obtained by applying to it two further equations the so named Reduction to Middle and Semiduration the former of which is applied with its natural sign while the latter has a negative or a positive sign according as we seek to find ingress or egress

Reductions to Middle of Eclipse or Other Phenomenon

I find the following as the expressions which must be applied to true time of conjunction upon Jupiter s orbit to reduce to the middle of the phenomenon —

Satellite I

No	Argument	Notation of Table	Eclipse	Occultation	Shadow	Transit
			d	d	d	d
1	$\sin 2h$	K	−0 000399	−0 000399	−0 000525	−0 000525
2	$\sin (h + h)$	P	− 000007	− 000007	− 000009	− 000009
3	$\sin (h + h)$	Q	− 000003	− 000003	− 000003	− 000003
4	$\sin 2d$	A	+ 000035	+ 000035	+ 000035	+ 000035
5	$\sin H \cos h$	γ K		− 000065		+ 000086

* It should be noted that the *apparent* longitude of the Sun is given not the true hence in correcting it for any fraction of a day (x) supplement x by $0^{d}\,00577$ the equation of light

Tables of the Four Great Satellites of Jupiter

Satellite II

No.	Argument	Notation of Tables	Eclipse	Occultation	Shadow	Transit
			d	d	d	d
1	$\sin 2h_o'$	Q	−0·000810	−0·000810	−0·001057	−0·001057
2	$\sin (h_o'+h_2')$	R	− ·000264	− ·000264	− ·000301	− ·000301
3	$\sin (h_o'+h_3')$	S	− ·000016	− ·000016	− ·000018	− ·000018
4	$\sin (h_o'+h_4')$	T	− ·000004	− ·000004	− ·000004	− ·000004
5	$\sin 2h_2'$	U	− ·000021	− ·000021	− ·000021	− ·000021
6	$\sin (\Psi-\omega_2)$	P	+ ·000019	+ ·000019	− ·000019	− ·000019
7	$\sin 2d_{23}$	A	+ ·000061	+ ·000061	+ ·000061	+ ·000061
8	$\sin H_1 \cos h'_o$	γ, Q	..	− ·000133	..	+ ·000174

Satellite III

No.	Argument	Notation of Tables	Eclipse	Occultation	Shadow	Transit
			d	d	d	d
1	$\sin 2h_o''$	O	−0·001567	−0·001567	−0·002050	−0·002050
2	$\sin (h_o''+h_2'')$	P	+ ·000019	+ ·000019	+ ·000019	+ ·000019
3	$\sin (h_o''+h_3'')$	Q	− ·000199	− ·000199	− ·000229	− ·000229
4	$\sin (h_o''+h_4'')$	R	− ·000039	− ·000039	− ·000045	− ·000045
5	$\sin 2h_3''$	S	− ·000008	− ·000008	− ·000008	− ·000008
6	$\sin (\Psi-\omega_3)$	N	+ ·000016	+ ·000016	− ·000016	− ·000016
7	$\sin (\Psi-\omega_4)$	..	+ ·000003	+ ·000003	− ·000003	− ·000003
8	$\sin g_3''$	D	+ ·000008	+ ·000008	+ ·000008	+ ·000008
9	$\sin H_1 \cos h_o''$	O, γ	..	− ·000264	..	+ ·000345

Satellite IV

No.	Argument	Notation of Tables	Eclipse	Occultation	Shadow	Transit
			d	d	d	d
1	$\sin 2h_o'''$	J	−0·002834	−0·002834	−0·003832	−0·003832
2	$\sin (h_o'''+h_3''')$	L	+ ·000068	+ ·000068	+ ·000080	+ ·000080
3	$\sin (h_o'''+h_4''')$	K	− ·000627	− ·000627	− ·000728	− ·000728
4	$\sin 2h_4'''$	M	− ·000035	− ·000035	− ·000035	− ·000035
5	$\sin (\Psi-\omega_4)$	I	+ ·000050	+ ·000050	− ·000050	− ·000050
6	$\sin (\Psi-\omega_3)$	..	− ·000006	− ·000006	+ ·000006	+ ·000006
7	$\sin g_4'''$	E	+ ·000028	+ ·000028	+ ·000028	+ ·000028
8	$\sin H_1 \cos h_o'''$	J, γ	..	− ·000537	..	+ ·000726

The last line but one of each of these expressions is not strictly due to the geometrical reduction to middle, but arises from acceleration of the Satellite's motion between conjunction and commencement of the phenomenon.

In the tabulation of these expressions the terms of the equation of light marked (1) on p. xxiv have been included.

Semiduration of Eclipse or Other Phenomenon

I find for the value of the semidiameter of Jupiter at mean distance $18'' 927$ and consistently with this and with the values of the radii on p xv the values of the coefficient of the chief term of the semidurations of the phenomena are —

	Sat I	Sat II	Sat III	Sat IV
Eclipses Occultations	$0^d\ 047957$	$0^d\ 060367$	$0^d\ 076262$	$0^d\ 101421$
Shadows Transits	$0^d\ 047904$	$0^d\ 060262$	$0^d\ 076052$	$0^d\ 100932$

These values are measured from the moment when the centre of the Satellite is in line with the rim of Jupiter and the centre of the Sun or the Earth as the case may be

The chief variable argument of the semidurations is the quantity ζ For eclipses ζ is given by the formulæ of p xvi For occultations this is supplemented by a term representing the jovicentric latitude of the Earth Taking the inclination of the plane of Jupiter s orbit at 1 3098 and calling ☊ the longitude of its instantaneous ascending node upon the ecliptic I find for this term the following coefficients multiplied into $R_1 \sin (\odot - ☊)/\Delta$ where R_1 is the geocentric distance of the Sun and Δ the geocentric distance of Jupiter —

	Sat I	Sat II	Sat III	Sat IV
$R \sin (\odot - ☊)/\Delta \times$	143127	2 9003	365938	643593

This is to be applied to ζ as an additional equation with its natural sign For shadow transit the formula for eclipse must be used but with all the coefficients increased in the ratios —

Sat I	Sat II	Sat III	Sat IV
1 00109	1 00173	1 00275	1 00485

For transits of the disc the additional equation used for occultations must be applied but with the reversed sign and all the coefficients must be increased as for shadows in the ratios given above

The meaning of ζ being thus defined and 2ξ denoting the Variation as given on p xv I find for the semidurations —

Satellite I

Eclipse

(1) $\quad 0^d\ 047957\ (1-\zeta\ )^{\frac{1}{2}}$

(2) $\quad +0\ 023782 \times 2\xi\ (1-2\ 029\zeta\ )(1-\zeta\ )^{\frac{1}{2}}$

(3) $\quad +0\ 000003 \cos G$

(4) $\quad +0\ 000002 \sin\ 2h + 0^d\ 000002 \sin^4 h$

Occultation

The same as for Eclipse together with the term

(5) $\quad +0^d\ 000005 \cos D$

Shadow

(6) $\quad 0^l\ 047904\ (1-\zeta\ )^{\frac{1}{2}}$

(7) $\quad +0\ 023756 \times 2\xi\ (1-2\ 029\zeta\ )(1-\zeta\ )^{\frac{1}{2}}$

(8) $\quad -0\ 000042 \cos\ h\ (1-\zeta\ )^{\frac{1}{2}}$

(9) $\quad +0\ 000002 \sin\ 2h\ +0\ 000002 \sin^4 h$

Transit

The same as for Shadow together with the term

(10) $\quad -0^d\ 000005 \cos D$

Satellite II

Eclipse

(1) $\quad 0^d\ 060367\ (1-\zeta\ )^{\frac{1}{2}}$

(2) $\quad +0\ 030145 \times 2\xi\ (1-2\ 011\zeta\ )(1-\zeta\ )^{\frac{1}{2}}$

(3) $\quad +0\ 000007 \cos G$

(4) $\quad [+0\ 000005 \sin\ 2h\ +0\ 000004 \sin\ h\ ]\times(1-\zeta\ )^{\frac{1}{2}}$

(5) $\quad [+0\ 000004 \sin 2h\ \ \sin (h\ +h\ )+0\ 000003 \sin\ h\ \ \sin h\ ]\times(1-\zeta\ )^{\frac{1}{2}}$

Occultation

The same as for Eclipse together with the term

(6) $\quad +0^d\ 000010 \cos D\ (1-\zeta\ )^{\frac{1}{2}}$

SATELLITE II—*continued*

Shadow

(7) $0^{\mathrm{d}}{\cdot}060262\ (1-\zeta_2^2)^{\frac{1}{2}}$

(8) $+0{\cdot}030092\times 2\xi_2\ (1-2{\cdot}011\ \zeta_2^2)(1-\zeta_2^2)^{-\frac{1}{2}}$

(9) $-0{\cdot}000052\ \cos^2 h_0' -0{\cdot}000008\ \cos h_0' \cos h_2' \times(1-\zeta_2^2)^{\frac{1}{2}}$

(10) $[+0{\cdot}000005\ \sin^2 2h_0' + 0{\cdot}000004\ \sin^4 h_0'] \times (1-\zeta_2^2)^{-\frac{1}{2}}$

(11) $[+0{\cdot}000004\ \sin 2h_0' \sin (h_0'+h_2') + 0{\cdot}000003\ \sin^3 h_0' \sin h_2'] \times (1-\zeta_2^2)^{-\frac{1}{2}}$

Transit

The same as for Shadow together with the term

(12) $-0^{\mathrm{d}}{\cdot}000010\ \cos \mathrm{D}\ (1-\zeta_2^2)^{-\frac{1}{2}}$

SATELLITE III

Eclipse

(1) $0^{\mathrm{d}}{\cdot}076262\ (1-\zeta_3^2)^{\frac{1}{2}}$

(2) $+0{\cdot}038253\times 2\xi_3\ (1-2{\cdot}004\ \zeta_3^2)(1-\zeta_3^2)^{-\frac{1}{2}}$

(3) $+0{\cdot}000017\ \cos \mathrm{G}$

(4) $[+0{\cdot}000016\ \sin^2 2h_0'' + 0{\cdot}000015\ \sin^4 h_0''] \times (1-\zeta_3^2)^{-\frac{1}{2}}$

(5) $[+0{\cdot}000005\ \sin 2h_0'' \sin (h_0''+h_3'') + 0{\cdot}000005\ \sin^3 h_0'' \sin h_3''] \times (1-\zeta_3^2)^{-\frac{1}{2}}$

Occultation

The same as for Eclipse together with the term

(6) $+0^{\mathrm{d}}{\cdot}000020\ \cos \mathrm{D}\ (1-\zeta_3^2)^{-\frac{1}{2}}$

Shadow

(7) $0^{\mathrm{d}}{\cdot}076052\ (1-\zeta_3^2)^{\frac{1}{2}}$

(8) $+0{\cdot}038148\times 2\xi_3\ (1-2{\cdot}004\ \zeta_3^2)(1-\zeta_3^2)^{-\frac{1}{2}}$

(9) $-0{\cdot}000064\ \cos^2 h_0'' - 0{\cdot}000004\ \cos h_0'' \cos h_3'' \times(1-\zeta_3^2)^{\frac{1}{2}}$

(10) $+0{\cdot}000016\ \sin^2 2h_0'' + 0{\cdot}000015\ \sin^4 h_0'' \times (1-\zeta_3^2)^{-\frac{1}{2}}$

(11) $[+0{\cdot}000005\ \sin 2h_0'' \sin (h_0''+h_3'') + 0{\cdot}000005\ \sin^3 h_0'' \sin h_3''] \times (1-\zeta_3^2)^{-\frac{1}{2}}$

Transit

The same as for Shadow together with the term

(12) $-0^{\mathrm{d}}{\cdot}000020\ \cos \mathrm{D}\ (1-\zeta_3^2)^{-\frac{1}{2}}$

When ζ_3 exceeds $\cdot 55$, I write $\{1-(\zeta_3+\delta\zeta_3)^2\}^{\frac{1}{2}}$ in the terms (1), (7), and omit the terms (2), (8), $\delta\zeta_3$ being determined by

(13) $\delta\zeta_3 = +\xi_3\ (-1{\cdot}003 + 2{\cdot}001\ \zeta_3^2)/\zeta_3$

SATELLITE IV

Eclipse

(1) $0^{\mathrm{d}}{\cdot}101421\ (1-\zeta_4^2)^{\frac{1}{2}}$

(2) $+0{\cdot}051200\times 2\xi_4\ (1-2{\cdot}001\ \zeta_4^2)\ (1-\zeta_4^2)^{-\frac{1}{2}}$

(3) $+0{\cdot}000050\ \cos \mathrm{G}$

(4) $[+0{\cdot}000039\ \sin^2 2h_0''' + 0{\cdot}000040\ \sin^4 h_0'''] \times (1-\zeta_4^2)^{-\frac{1}{2}}$

(5) $[+0{\cdot}000017\ \sin 2h_0''' \sin (h_0'''+h_4''') + 0{\cdot}000016\ \sin^3 h_0''' \sin h_4'''] \times (1-\zeta_4^2)^{-\frac{1}{2}}$

Occultation

The same as for Eclipse together with the term

(6) $+0^{\mathrm{d}}{\cdot}000047\ \cos \mathrm{D}\ (1-\zeta_4^2)^{-\frac{1}{2}}$

Shadow

(7) $0^{\mathrm{d}}{\cdot}100932\ (1-\zeta_4^2)^{\frac{1}{2}}$

(8) $+0{\cdot}050960\times 2\xi_4\ (1-2{\cdot}001\zeta_4^2)\ (1-\zeta_4^2)^{-\frac{1}{2}}$

(9) $[-0{\cdot}000076\ \cos^2 h_0''' - 0{\cdot}000007\ \cos h_0''' \cos h_4'''] \times(1-\zeta_4^2)^{\frac{1}{2}}$

(10) $[+0{\cdot}000039\ \sin^2 2h_0''' + 0{\cdot}000040\ \sin^4 h_0'''] \times (1-\zeta_4^2)^{-\frac{1}{2}}$

(11) $[+0{\cdot}000017\ \sin 2h_0''' \sin (h_0'''+h_4''') + 0{\cdot}000016\ \sin^3 h_0''' \sin h_4'''] \times (1-\zeta_4^2)^{-\frac{1}{2}}$

Transit

The same as for Shadow together with the term

(12) $-0^{\mathrm{d}}{\cdot}000047\ \cos \mathrm{D}\ (1-\zeta_4^2)^{-\frac{1}{2}}$

When ζ_4 exceeds $0{\cdot}55$, I reject the terms (2), (8) and also (4), (5), (9), (10), (11), and write $(\zeta_4+\delta\zeta_4)^2$ in place of ζ_4^2 in (1), (7), where

(13) $\delta\zeta_4 = \xi_4\ (-1{\cdot}0096 + 2{\cdot}0004\zeta_4^2)/\zeta_4 + \xi_4^2\ (4\zeta_4 - \tfrac{1}{2}\zeta_4^{-3})$

(14) $+[-{\cdot}00039\ \sin^2 2h_0''' - {\cdot}00040\ \sin^4 h_0''' - {\cdot}00017\ \sin 2h_0''' \sin (h_0'''+h_4''') - {\cdot}00016\ \sin^3 h_0''' \sin h_4''']/\zeta_4$

(15) $+[+{\cdot}00038\ \cos^2 h_0''' + {\cdot}00004\ \cos h_0''' \cos h_4''']\ (1-\zeta_4^2)/\zeta_4$

the last applying for Shadows and Transits only.

Introduction

Phase of Jupiter

The phase of Jupiter affects the phenomena of transit whether of the shadow or the disc cutting off either the beginning or the end When the annual parallax is positive that is to say when the geocentric longitude exceeds the heliocentric the ingress of the shadow is delayed and the egress of the disc is anticipated When the annual parallax is negative the egress of the shadow is anticipated and the ingress of the disc is delayed * We have a new diminished Semiduration and Reduction to Middle applicable to the phase affected the other phase following the formulæ already exposed

I find the following allowances add to the semiduration an equation with argument tan p/ tan 11 where p is the annual parallax and with coefficient

	Sat I	Sat II	Sat III	Sat IV
Equation of Semiduration	$+0^{d}$ 000017	$+0^{d}$ 000008	$+0^{d}$ 000004	

and diminish the calculated values of Semiduration and Reduction to Middle by the following fractions of themselves —

		Semiduration	Reduction to Middle
Satellite	I	$1-\cos p+$ 0148 $\cos p \sin p$	$\tan p$
	II	$1-\cos p+$ 0057 $\cos p \sin p$	$\tan p$
	III	$1-\cos p+$ 00 2 $\cos p \sin p$	$\tan p$
	IV	$1-\cos p+$ 0007 $\cos p \sin p$	$\tan p$

Progress of an Eclipse

An eclipse takes place gradually and the time shown by the several equations already considered indicates only a single definite phase of it namely the point at which the centre of the Satellite s disc is in line with the rim of Jupiter and the centre of the Sun s disc If the albedo of the Satellite is symmetrical about its centre the brightness of it as a whole is then diminished by one half or its magnitude has risen by 0^{m} 75 The light curve which it follows on either side of this point during the progress of eclipse depends among other factors upon the diameter of the disc The diameters which I find to correspond with the actual light curves of the eclipses used as material for these Tables are the following at Jupiter s mean distance —

	Sat I	Sat II	Sat III	Sat IV
Diameter of Disc	0 900	0 796	1 397	1 341

The standard light curves which correspond to these show the relation between magnitude and a definite configuration defined by the fraction or multiple of the Sun s radius which is cut off by a line from the Satellite s centre touching Jupiter s rim This fraction denoted by k is zero at half brightness negative at full brightness and positive in full eclipse † The speed with which this standard light curve is described varies with the arguments of the Satellite s position and I find for the varying factor—

$$\pm(1-2\xi-\zeta\ )^{\frac{1}{2}}/\{1+0644\,\zeta\ \}$$

multiplied by the following coefficients which express the motion in k for one second of time

	Sat I	Sat II	Sat III	Sat IV
Motions in k for one second	04587	02285	01134	00486

The sign is positive for disappearances and negative for reappearances

* At the limb of Jupiter the shadow unaffected by phase will appear elongated in the direction of Jupiter s orbit but when ffected by phase it will be foreshortened in the same direction

† Disappearai ce as defined by Laplace corresponds to the phase $k = 1$

This motion strictly applies to the moment of half-brightness only, and is subject to acceleration for other phases. The acceleration is insensible for Satellites I, II; for Satellites III, IV it has been taken from the formulæ

	Sat. III	Sat. IV	
$k - t\Delta k_0 =$	$-\cdot 0067$	$-\cdot 0125$	$\times (t\Delta k_0)^2/(1-\zeta_i^2)$.

But as we do not explicitly meet with the co-ordinate k, but only a light-curve involving magnitude and time, I have tabulated for these two Satellites not the single curve which shows the relation between the configuration k and the magnitude m, but a succession of curves showing for different values of ζ_i the relation of m and a quantity proportional to the time, viz. $t\Delta k_0$, which I call $(k)_0$; here t is the number of seconds elapsed since half-brightness and Δk_0 is the motion in k per second at that instant, as given by the formulæ on p. xxiii.

The Equation of Light

We have now shown how to calculate the true time of each phenomenon. It remains to show how to find the apparent time by applying the Equation of Light.

With solar parallax $8''\cdot 800$, the time taken by light to traverse unit distance is $498^s\cdot 565 = 0^d\cdot 0057704$, and if we take out from the *Nautical Almanac* the logarithm of the true geocentric distance of Jupiter at the time of approximate conjunction, we derive immediately the chief part of the equation. It is subject to the following corrections:—(1) in eclipses and occultations it is increased, and in shadows and transits diminished, by the constant time taken to describe the radius vector of the Satellite's orbit; this has the following values:—

Sat. I	Sat. II	Sat. III	Sat. IV
$0^d\cdot 000016$	$0^d\cdot 000026$	$0^d\cdot 000041$	$0^d\cdot 000072$.

(2) during the passage of light across Jupiter's orbit the position of the Earth has changed, diminishing the distance before Jupiter's opposition and increasing it after by an amount $+0^d\cdot 000003 \sin D$, which is the same for all the satellites; (3) the actual moment when the distance from Jupiter to the Earth is wanted, is not the time of conjunction, but the same diminished or increased by the semiduration; the effect of recognising this is the same as increasing the semiduration by a fraction of itself equal to $\cdot 000091 \sin D$, which may be taken at the following values:—

	Sat. I	Sat. II	Sat. III	Sat. IV
Coefficient of sin D:	$+0^d\cdot 000004$	$+0^d\cdot 000005\,(1-\zeta_2^2)^{\frac{1}{2}}$	$+0^d\cdot 000007\,(1-\zeta_3^2)^{\frac{1}{2}}$	$+0^d\cdot 000009\,(1-\zeta_4^2)^{\frac{1}{2}}$.

The sign of this equation is the natural sign of sin D. The first of these corrections is united with the reduction to middle for each Satellite and the third with the semiduration.

I have now explained all the formulæ upon which the calculations are based, and I shall proceed to show how these are reduced to tables.

Arrangement of the Tables

In the tables that follow, tabulation constants have been applied in the usual manner, adding such quantities to the minor equations as make them always positive and subtracting the sum of these from the main equation. The quantity so applied is noted at the foot of each table. But where an equation or group of equations is liable to be sometimes applied and sometimes not, it is necessary to treat it in a different way from those which are applied in

every case Such a group is illustrated by the annual parallax of Jupiter which applies for geocentric conjunction but not for heliocentric In these cases it has not been possible to banish negative signs altogether from the tables the minor equations *of the group* have been made positive and the sum of the constants used subtracted from the chief equation the group must then be applied or not as a whole recognising the natural sign which it shows When any or all of the letters E O S T are shown in prominent connection with any of the tables they indicate that phenomenon to which that table applies

The differences employed throughout are *upon the line* and each is equal to the mean of the preceding and following interlinear differences Where second differences are sensible they will follow the formula

$$f(a+x)=f(a)+x\,\Delta+\tfrac{1}{2}x\ \Delta$$

and the quantity shown in the second difference column is $\frac{1}{2}\Delta^2$ Hence the rule will be for the interval x —*Correct the first difference entry by* x *times the second difference entry which stands opposite to it and apply* x *times this corrected quantity to the chief entry*

It has often appeared convenient to give the value of the difference Δ which corresponds to a fraction only of the interval between successive tabulations of the argument Thus the latter interval may be say 2^d but Δ as may be seen at the head of its column will measure the change in 1^d We then ask what fraction of 1^d—not of 2^d—is the interval x and multiply this fraction into Δ In the tables where second differences appear the quantity tabulated as $\frac{1}{2}\Delta^2$ has been modified agreeably so that the rule for their use is that which is given above unchanged For example taking from Table XXII of Satellite I

K	Equation	Δ d 001	$^1\Delta$
d 0 155 160	0 03255 3190	−13 5 12 5	+ 10 10

and noting that the comma ( ) is placed to the right of the place where the last digit of the equation would stand to take out the equation for argument 15731 multiply 2 31 into + 10 add and to Δ giving −13 3 multiply 2 31 into −13 3 giving product −31 and the required equation is 0 03224

An attempt has been made to mitigate the waste of effort arising from our irregularly divided units by employing within the compass of the tables only the decimal of a day and the decimal of a degree To help the conversion from hours minutes and seconds of time and minutes and seconds of arc and conversely short auxiliary tables have been added at the end (Tables CVI–CIX)

To simplify the corrections of the numerous arguments for fractions of a day the known device has been employed of tabulating the value of the argument under the form *time elapsed from its zero point* thus for example to take out the values of arguments corresponding to Apr 17^d 238300 we write 238300 upon a slip and carrying it along the line where the arguments are given for Apr 17^d 0 add it to each entry and write down the sum as the extract required A disadvantage of this plan is that when the complete period of the argument is exceeded it must be deducted and it is as a rule more trouble to deduct an irregular decimal of a day than 360 It is done with least trouble by writing or printing (say in brackets) the complement of the period of each argument at the place where the argument is to stand, and adding this in or not as may be required But to make it less

frequently necessary, the calculation of each table is carried somewhat beyond a complete period of its argument to such a distance as the size of the page may allow.

As already explained, the tables of each Satellite fall into three portions: first, Approximate Tables, showing the times of true conjunction, and designed as a guide in computing eclipses and the other phenomena; second, complete Tables of Longitude, Latitude and Radius Vector, giving the place of the Satellite at any specified time with all necessary accuracy; and third, Tables of the Phenomena, showing how to derive the true time of occurrence of any of these from a known time of true conjunction upon Jupiter's orbit. Besides these tables which belong to each Satellite in particular, there are Auxiliary Tables whose use is common to all. These show the reductions of the Annual Parallax and Jupiter from the ecliptic to Jupiter's orbit, the equation of light, and the conversion of $^{h\,m\,s}$ to decimals of a day, of $'\,''$ to decimals of a degree, and conversely. I proceed to describe these different portions in detail.

SATELLITE I

Approximate Tables of Conjunction

Table I.—Column 1 shows the year, leap year being indicated by *. Column 2 shows the true date of superior heliocentric conjunction of the Satellite and Jupiter, the Satellite's place being taken at its mean, but Jupiter's place being corrected for his chief perturbations, specified above (p. xvii). Column 3 shows the further effect which these perturbations would have in anticipating or retarding conjunctions at a later part of the same year; it must be applied to the entry of column 2. Column 4 shows under the name of argument α, and in terms of days elapsed since its zero-value, the value of the angle $G + \delta G$ defined on p. xii. Column 5 shows under the name β the value of the angle D defined on p. xii. Column 6, argument γ, gives the value of the angle G, of p. xii. Column 7, argument δ, gives $2d_{12}$. Column 8, argument ϵ, gives h_0. The values are those which belong to the times given in column 2, allowing for the application of certain tabulation constants which are specified in the margin of the table. If inferior heliocentric conjunction is wanted, the half synodic period $0^{d}\cdot 8849$ must be written upon a slip and added to each entry as it is taken out. The period of each argument is given at the foot of its column.

Table II shows the days of the year occupied in any complete number of synodic revolutions. These dates refer to ordinary years; they must be diminished in leap year by 1^{d} after Feb. 28. Columns 3, 4, 5 give the corresponding motions of the arguments. The entries are to be added to those of Table I. The arguments α, β, γ are now complete; δ, ϵ must be corrected further by applying to them the equation to argument α (Table III), which measures the time by which conjunction is anticipated or retarded owing to Jupiter's equation of the centre, and also, when geocentric conjunction is in question, by the annual parallax from Tables IV, V, VI.

The equation of Table III represents the terms $+5^{\circ}\cdot 528 \sin (G + \delta G) + 0^{\circ}\cdot 167 \sin 2 (G + \delta G)$, reduced to time as explained on p. xvii, and must be applied to the entries of columns 7, 8 of Table I as well as to the time of mean conjunction taken from column 2.

Tables IV, V, VI taken together give the Annual Parallax, p. As this group of equations has not always to be applied, its natural sign remains. Tables V, VI have been rendered positive, but IV may be either positive or negative. The three must be taken as a whole and, to find geocentric conjunction for occultations and transits, must be applied to the time of mean heliocentric conjunction (col. 2) and to the arguments δ, ϵ (cols. 7, 8) of Table I. p is

wanted also as argument for phase effects upon shadows and transits (Table LI) For eclipses p and the argument γ are not wanted

Table IV represents the first line of the expression for p on p xvii

Table V is a table of double entry with arguments β α representing the second line of the same

Table VI is a table of double entry with arguments β γ and represents the third line of the same

Tables VII VIII give equations with arguments δ ϵ which represent the terms of Satellite I on p xviii When these are applied to the time of conjunction its correction is complete and the sum of the various entries gives approximately the time of true conjunction heliocentric or geocentric superior or inferior

Tables of Longitude Radius Vector and Latitude

Table IX shows in column 2 the mean longitude of Satellite I at the beginning of each year less a tabulation constant 0 60000 Columns 3–19 give the corresponding values of the arguments A–Q required for correcting it and for finding the radius vector and latitude The significance of these arguments is given on pp xiii xvi The period of each argument is given at the foot All are expressed in days except J which refers to long period inequalities for this the year is used

Table X shows the motions of the same quantities for each day of the year After Feb 28 in leap years the date in column 1 must be diminished by a unit The correction of the motion of the arguments (cols 3–16) for the fraction of a day is made on this table by writing the fraction upon a slip and adding it to the entry as it is taken out * but for mean longitude (col 2) the correction is made by Table XI This table gives the motions of mean longitude from 0^{d} 01 to 1^{d} 00 and from 0^{d} 0001 to 0^{d} 0100 To take out from the latter the motion say for 0^{d} 007358 we take the correction for ^{d} 0058 divide it by 100 and apply it to that for 0^{d} 0073 this step may be done mentally

Tables XII–XXIV give the equations for reducing the Satellite s mean longitude to true longitude upon Jupiter s orbit The expressions included under each argument are shown above p xiii The equations must be taken out as they stand and applied to the mean longitude

Tables XXV–XXIX must be taken as a single group the first carries the sign + or − the others have all been rendered positive Together they represent the expressions of p xv which measure $2(r/a-1)$ or the doubled variation of the radius vector of the Satellite projected upon Jupiter s equator compared to its mean or again with sufficient accuracy the corresponding variation of the motion of the Satellite in longitude if the sign is reversed The entries of Tables XXV–XXIX must be taken out as they stand preserving the natural sign of the first Their sum is the quantity called below the Variation and appearing as an argument in Table XLIV and elsewhere

Tables XXX–XXXIV represent the expressions of p xvi with a positive constant added to each the sum of these additions being 40000 Their sum is the quantity called the Latitude below and appears again as an argument of Table XXXVII which shows the corresponding angle of the radius vector of the Satellite above Jupiter s orbit and also in Tables XL XLIV LIII for eclipses

Table XXXV is a direction for modifying the latitude as taken for Tables XXX–XXXIV

But in correcting J it must be remembered that the unit is a year and the fraction must be divided by 365 See also a remark on p xxviii relative to the correction of Arg K

in consequence of the jovicentric latitude of the Earth, in accordance with the expressions of p. xxi. The expression follows the natural sign of $\sin(\odot - \Omega)$ for occultations, but the reversed sign for transits. The values of R_1, Δ and $\odot$ must be taken from the *Nautical Almanac*; the value of Ω reproduced from Hill's *Tables of Jupiter*, p. 144, is shown in Table C.

Table XXXVI shows a further correction to the latitude for shadows and transits in agreement with the statements on p. xxi.

The corrections from Tables XXXV, XXXVI must be applied in the appropriate cases to the latitude derived from Tables XXX–XXXIV before the latter is used as an argument for semiduration of any phenomenon other than eclipse in Tables XL, XLI.

Tables of the Phenomena

The first thing required is the exact moment of true conjunction upon Jupiter's orbit, as explained upon p. xviii. The approximate time is indicated by Tables I–VIII. The true longitude of the Satellite at this moment is taken from Tables IX–XXIV. The longitude of Jupiter at the same moment, upon the ecliptic, referred to the mean equinox, is taken from the *Nautical Almanac**, and is corrected by applying to it the entry of Table CI, which is reproduced from Hill's *Tables of Jupiter*, p. 144. When it is a question of occultations or transits, the annual parallax upon the ecliptic must also be computed by the formulæ of p. xix, reduced to Jupiter's orbit by Tables CII, CIII, and added with its natural sign to the reduced longitude of Jupiter. The resulting angle must be converted to decimals of a degree by Table CVI, and its excess determined above the longitude of the Satellite at the same time. Tables XXXVIII, XXXIX show the equivalent of this excess in time, or the Complement which must be applied with its natural sign to derive the exact time of true conjunction from the approximate time which Tables I–VIII have indicated. Tables XXXVIII, XXXIX assume the Satellite to have its mean motion; to correct for the true motion it is only necessary to multiply the entries of these tables by the Variation as taken from Tables XXV–XXIX, but for Satellite I this correction is seldom sensible.†

Tables XL–XLIV form a group expressing the semiduration in agreement with the formulæ of p. xxi. The argument of Table XL is the latitude as derived from Tables XXX–XXXVI or such of these as are applicable. Column 2 shows the value of the main term for eclipses and occultations, numbered (1) on p. xxi; column 4 shows the correction that is to reduce it to the value (6) of p. xxi which is appropriate to shadows and transits. Table XLI gives the value of the terms (4) on the left and (8), (9) on the right. Table XLII gives the term (3); this term is sensible only for eclipses and occultations, hence the equation of this table preserves its natural sign.

Table XLIII represents the terms (5) and (10) together with a certain term properly belonging to the equation of light and due to the motion of the earth pending the semiduration of the phenomenon which is given as (3) on p. xxiv. Table XLIV is a table of double entry representing the terms (2) or (7), the difference between which is insensible. Its arguments are Latitude and Variation. This completes the group; then the sum of the equations from Tables XL–XLIV being found, it must be applied to the exact time to true conjunction with a negative sign for the ingress of the phenomenon and a positive sign for

* At the same time the logarithm of Jupiter's true distance from the Earth is taken out for use as argument in Table CIV.

† For perfect accuracy the complement may also be applied as a correction to Argument K before the latter is used to determine the latitude.

egress But it must be noted that for shadows and transits one or other of these cases is first liable to a further correction for phase by Table LI as explained below

The next group of tables gives the reduction from conjunction to the middle of the duration of the phenomenon Tables XLV–L form this group Table XLV shows to left and right of the argument the values of line 1 of the expressions given on p xix With these are united constant portions of the equation of light denoted by (1) on p xxiv The natural sign of the entry must be preserved The second third and fourth lines of the same expression are given in Tables XLIX L XLVIII the entries in which have been made positive The fifth line is represented by the Tables XLVI XLVII These are alternatives and as each applies to one phenomenon only the entries appear with their natural signs they are tables of double entry with arguments K γ Having formed the sum of the equations of the group XLV–L so far as they apply we add it with its natural sign to the time of conjunction but it should first be corrected for the unequal motion of the Satellite by adding to it its product by the variation in the cases when this product is sensible It is also liable to correction for either ingress or egress of shadows and transits owing to phase Table LI shows the correc tions that must be applied on this account both to semiduration and to reduction When the annual parallax p is positive that is before Jupiter s opposition to the Sun the corrections apply to shadow ingress and transit egress when p is negative they apply to shadow egress and transit ingress Table LI follows the formulæ of p xxiii Column 1 shows the additional equation of the semiduration to be included with those of Tables XL–XLIV Columns 3 5 show the fractions by which the semiduration and reduction that have been calculated must be diminished before applying these quantities to the time of conjunction as directed above

Tables LII LIII LIV show the light curve of eclipse in agreement with the formulæ of p xxiii Table LII gives the standard curve The observed light curve in which magnitude and time in seconds are the co ordinates may be reduced for comparison with this by enter ing Table LIII with latitude as argument correcting the entry from Table LIV and multiplying into the observed time the value of the motion of the standard co ordinate k per second which is thus found When the observed light curve is thus made comparable with the standard curve the correction which the observation shows to an ephemeris derived from these tables will be indicated by that value of k in the observed light curve which corresponds to $k=0$ in the standard curve

SATELLITE II

The tables of Satellite II follow the same general plan as those of Satellite I and their description may therefore be somewhat compressed

Approximate Tables of Conjunction

The description and use of these tables is identical with that given for Satellite I changing only the value of the half synodic period to $1^d\ 7770$ and the arguments designated by δ ϵ to $2d_3$ $2h$ as stated on p xviii

Tables of Longitude Latitude and Radius Vector

These tables again follow closely the corresponding tables for Satellite I The arguments run from A to Z and their significance is shown on pp xiii xvi The long period inequalities with which is included the Annual Equation with argument $G+\delta G$ are tabulated under the years all the others are expressed in days In Table X the correction for the fraction of a day

is made as for Satellite I by an adding slip, except for the mean longitude, which is provided for in Table XI. The equations of longitude, arising from the various arguments, are shown in Tables XII–XXXII, of which the last five relate to the reduction to Jupiter's orbit. After the longitude comes the group of equations, XXXIII–XXXVI, which represent the expression $2(r_2/a_2 - 1)$ given on p. xv. The first member of this group has a sign + or −; the others are positive. The sum of this group of equation is termed the Variation, and appears as argument in Table LVI, and elsewhere for converting mean motion into true. Tables XXXVII–XLIV represent the expressions of p. xvi, together with tabulation constants amounting in all to ·70000. Their sum is termed the Latitude, and appears again as argument of Table XLVII, which shows the corresponding inclination to Jupiter's orbit of the radius vector to the Satellite. Tables XLV, XLVI show how to modify it for the purposes of occultations, shadows and transits. With or without these additions, as may be proper, it appears again as argument of Tables L, LIII, LVI for finding the semiduration of eclipse or other phenomenon, and in Table LXVIII for finding the rate of progress in the standard light-curve in eclipse. In respect to Table XLV, which allows for the jovicentric latitude of the Earth, the remarks on p. xxviii in connection with Satellite I apply unchanged.

Tables of the Phenomena

The plan of these tables is the same as for Satellite I; the true longitude of the Satellite having been found at the approximate time of conjunction given by Tables I–VIII, it must be compared with the true longitude of Jupiter at the same instant—heliocentric for eclipse and shadow, geocentric for occultation and transit. The computations that are necessary for this comparison are stated on p. xxviii and need not be repeated here. The excess of the longitude of Jupiter over that of the Satellite gives the complement, in angle, and Tables XLVIII, XLIX show how to convert this into time in proportion to the mean synodic motion; and the complement in time, with its natural sign, and increased by its product by the Variation (Tables XXXIII–XXXVI), in order to allow for the difference of true synodic motion from the mean, applied to the adopted approximate time of conjunction, gives the exact time. This is conjunction in longitude, upon Jupiter's orbit. We then have two groups of tables (Tables LVII–LXV) containing the terms of reduction from conjunction to the middle of the phenomenon of eclipse, or whatever it may be, and Tables L–LVI containing the semiduration or portion applicable with opposite sign according as we seek the phenomenon of ingress or egress. Taking the latter group first, we next take the Latitude as argument (Tables XXXVII–XLIV, with XLV, XLVI); it is supposed in the theory that this is taken out at the exact time of conjunction; hence for perfect accuracy, before the latitude is derived, the complement in time should be added to the values of the arguments Q–Z, which otherwise stand for the approximate time only given by Tables I–VIII. With the latitude so found we enter Table L; in this table column 2 represents line (1) of p. xxi, being the main part of the semiduration for eclipses and occultations; column 4 represents the correction required for shadows and transits in order to pass from line (1) to line (7), p. xxii. Table LI, argument α, represents line (3); this term is wanting in the theory of shadows and transits, hence it appears in the tables with its natural sign and no tabulation constant. Table LII, argument β, represents a term of the equation of light, given on p. xxiv. Table LIII, with arguments β and the latitude, represents the terms (6) and (12) which apply only to occultations and transits and therefore figure here with their natural signs. Tables LIV, LV are alternative; the former applies to eclipses and occultations and represents the terms (4), (5) together; the latter applies to shadows and transits, and represents the terms (9), (10), (11). Finally, Table

LVI of which the arguments are Latitude and Variation represents the terms (2) or (8) no distinction being made between these The formulæ would differ from one another by little more than a unit at maximum in the sixth place of decimals or say by 0 1 and it may be remarked here that for the satisfactory working of these tables fastidious accuracy in the last decimal place is not essential and may sometimes be relaxed without loss

The expressions for Reduction to Middle are given on p xx Table LVII represents No 1 with argument Q The tabulation constants applied to render positive the other members of the group amounting to 0^d 000461 are subtracted from it A portion of the equation of light amounting to $\pm 0^d$ 000026 is also applied here Tables LVIII–LXIII represent the expressions numbered 2 7 6 3 4 5 respectively number 8 which applies with different values for occultations and transits and to these phenomena only is represented by Tables LXIV LXV which are tables of double entry with argument Q γ and must be applied with their natural signs The sum of the equations for the Reduction must be corrected by adding to it its product by the Variation

Table LXVI contains the corrections for Jupiter s phase which apply to shadows and transits and are shown on p xxiii the argument is the Annual Parallax p derived from Tables IV V VI The equation in column 1 must be added to the semiduration as found in Tables L–LVI and the sum must be diminished by applying to it its product by the factor in column 3 similarly the reduction drawn from Tables LVII–LXV must be modified by applying to it its product by the factor in column 5 The corrected semiduration and reduction apply to the phenomenon which is affected by phase only while for the opposite phenomenon the uncorrected values apply The progress of an eclipse is calculated from Tables LXVII–LXIX The first gives the standard light curve corresponding to diameter $0'$ 796 in terms of magnitude and the co ordinate k the second gives the relation between k and time for different values of the Latitude the third a correction to the second due to the Variation

SATELLITE III

The general arrangement is the same as for Satellite I to which reference may be made for details which it is needless to repeat

Approximate Tables of Conjunction

The arrangement is the same as that for Satellite I save only that the arguments δ ϵ ζ η are those so named on p xviii and replace everywhere the two arguments that figured in Satellite I and the equation of Table III must be applied as a correction to the arguments β γ as well as to the other entries of Table I

Tables of Longitude Latitude and Radius Vector

These tables also follow closely the arrangement for Satellite I The significance of the arguments A–V of Table XI is shown on p xiv xvi The long period inequalities do not include for this Satellite the annual equation with argument G + δ G This equation has a separate argument α but it may be noted that if we are calculating one of the phenomena with the help of the Approximate Tables α has already been found and then column 16 of Table XI may be passed over The corrections of the arguments for days elapsed from the beginning of the year are shown in Table XII For all except the mean longitude the correction for the fraction of a day is made in the same table by means of an adding slip for the mean longitude it is made by means of Table XIII Tables XIV–XXXII give the

equations of longitude which are recorded on p. xiv, each supplemented by a tabulation constant which is recorded at the foot of the table. The equations of Tables XXXIII–XXXVI taken together represent the formula of p. xv which represents $2(r_3/a_3-1)$. The four equations form a group, the tabulation constants of the last three being deducted from the first, which in consequence is always negative. Their sum is the so-called Variation, which appears again as argument of Tables XLVIII, L and elsewhere for converting mean motion into true. Tables XXXVII–XLII form a group which represents the expression of p. xvi, augmented by the sum of its tabulation constants, viz. by 1·00000. Their sum is the so-called Latitude, which reappears first as the argument of Table XLV, which shows the corresponding angle above Jupiter's orbit of the radius vector to the Satellite.

Tables XLIII, XLIV show corrections to be applied to the sum of the equations of Tables XXXVII–XLII for occultations, transits and shadows. Table XLIII is used as explained on p. xxvii. The Latitude, with or without these corrections as may be proper, is then used as argument in the Tables of the Phenomena for finding the semiduration of eclipse or other phenomenon, and the rate of progress of eclipse.

Tables of the Phenomena

The plan of these tables is generally the same as that for Satellite I, but there are certain differences. Tables XLVI, XLVII show the time taken to describe any given angle with the mean synodic motion, and the corresponding time with the true synodic motion is found by adding to this result its product by the Variation as taken from Tables XXXIII–XXXVI—the natural sign of the Variation being regarded. They are used like the corresponding tables of Satellites I, II, as explained on pp. xxvii, xxx, for finding the exact time of true conjunction from a comparison of the longitudes of Jupiter and the Satellite at an assumed approximate time. The correction, the so-called Complement, must be added, with its natural sign retained, to the approximate time, and also, for full accuracy, to the arguments O, S before these are used to derive the Latitude which is the argument of the following tables. When the exact time of true conjunction has been found, three quantities must be applied to it: the Reduction to the Middle of the phenomenon, the Semiduration of the phenomenon, and the Equation of Light. For the last of these, see Tables CIV, CV below. The second of them is contained in the group of tables XLVIII–LV, which represent the formulæ of p. xxii, together with the term of the equation of light (3) given on p. xxiv. Table XLIX *a*, *b*, represents in column 2 the leading term (1) of p. xxii, which is converted into (7) by the entry of column 4. The second portion, XLIX *b*, the argument of which is the latitude in its lower values from 0·450 to 1·550, is corrected by Table L, with arguments Latitude and Variation, for the terms (2) or (8) of p. xxii, just as the corresponding correction is made for Satellites I, II; but for higher latitudes this method is inexact, and in place of adding an equation to the semiduration, we correct the latitude as derived from Tables XXXVII–XLIV, before using it as argument in Table XLIX*a*, by the term $\delta\zeta_3$ which is given on p. xxii. This Correction of High Latitudes is given in Table XLVIII. This difference of method for high and low latitudes involves a difference in the tabulation constants of Tables XLIX *a* and *b*, that of the former being $-0^{d}\cdot000100$ and of the latter $-0^{d}\cdot000500$. Table LI represents the term (3) of p. xxii. This term is present only in eclipses and occultations. Table LII represents the term of the equation of light, $+0^{d}\cdot000007\ (1-\zeta_3^{2})^{\frac{1}{2}}$ sin D given on p. xxiv. This applies to all the phenomena. The arguments are the Latitude and β, which represents D. With the same arguments a term, (6) and (12) of p. xxii, is present in occultations and transits only. This is

given in Table LIII with a natural sign which must be regarded The remaining terms of p xxii (4) and (5) are given in Table LIV and (9) (10) (11) in Table LV In the case of transits and shadows there are further equations depending on Jupiter s phase described below under Table LXV The semiduration as corrected by these various equations must be added to or subtracted from the time of conjunction which has already been found according as we seek egress or ingress of the phenomenon

The next group of equations—the Reductions to Middle—are given in Tables LVI–LXIV which represent the formulæ of p xx together with the term which gives the correction (1) to the equation of light given on p xxiv This is included in Table LVI which as to its variable part represents the term (1) of p xx The sum of tabulation constants which make the remaining terms positive has been subtracted from this table and natural sign of the equation must be regarded The terms 2–5 are represented by Tables LVII–LX the terms 6 7 by Table LXII the term 8 by Table LXI and the term 9 by Tables LXIII LXIV Table LXIII applies to occultations only Table LXIV to transits only hence they are given with their natural signs The sum of the equations of the reduction from Tables LVI to LXIV must be corrected by its product by the Variation and for shadows and transits by Table LXV also and the whole applied with its natural sign to the time of true conjunction already found

Table LXV gives the corrections for Jupiter s phase which are enumerated on p xxiii These apply to shadows and transits only The argument of the tables is the annual parallax of Jupiter p which is derived from the Approximate Tables IV V VI The rule which governs the application of the equations according as p is positive or negative is given at the foot of the table Column 1 of Table LXV must be applied subject to this rule directly to the semiduration drawn from Tables XLIX–LV column 3 gives a factor which multiplied into the semiduration gives a final correction to be applied to it and column 5 a corresponding factor to be multiplied into the reduction as drawn from Tables LVI–LXIV to get the correction for phase of this quantity It will be noticed that for transits only ingress or only egress is affected by phase the other phenomena following the rules already given and ignoring Table LXV The same is true of shadow transits Tables LXVI–LXVIII give the progress of an eclipse in accordance with the rules of pp xxiii xxiv With any given latitude Table LXVI gives a light curve which shows the rise of magnitude m with the progress of a quantity (k) which is proportional to the time and which vanishes at half brightness The rate at which (k) varies with the time is found from Table LXVII in which the argument is Latitude and Table LXVIII which corrects the last for the Variation

SATELLITE IV

There is no material variation at any point between the arrangements of the tables of Satellites III and IV

The Approximate Tables represent the formulæ of pp xvii xviii and are to be used in the same way as for Satellite III

In the Tables of Longitude Latitude and Radius Vector pp xiv xvi give the designation of the arguments which figure in Tables IX X p xiv shows also the values of the inequalities tabulated in Tables XII–XXV The expressions on p xv show the values of the entries of Tables XXVI–XXIX which together make up the Variation or 2 $(r_4/a_4 - 1)$ and p xvi shows the terms of Latitude which are given in Tables XXX–XXXVI In the first of these tables with argument J *i e* h''' the term numbered 3 on p xvi with argument $h''' - 2\Lambda$ has been included since the motion of 2Λ is so small over the period for which these tables run as to be

here negligible. The sum of all the constants added in Tables XXX–XXXVI is 1·50000, so that the limits of eclipse, $\zeta_4 = \pm 1$, correspond respectively to latitudes 2·50000 and 0·50000. Table XXXVII represents the term of p. xx, applicable to occultations and transits, Table XXXVIII the correction of p. xxii for shadows and transits, and Table XXXIX the inclination of the radius vector of the Satellite to Jupiter's orbit, which corresponds to the sum of the equations given by Tables XXX–XXXVI.

In the Tables of the Phenomena which follow, Tables XL, XLI require no additional remark; they are to be used like the corresponding tables for the other Satellites. The next two tables follow the plan of the corresponding table of Satellite III, and are designed to avoid the imperfect convergence of the corrections (2), (4), (5), (8), (10), (11) of p. xxii to the semiduration as ζ_4 approaches the values + 1 or − 1. It is accomplished by omitting these terms and adding to ζ_4 a compensating correction. This method is used from $\zeta_4 = \mp 1$ to $\zeta_4 = \mp\cdot 55$, *i.e.* from latitude 0·50 to 0·95, and from latitude 2·50 to 2·05. Table XLII represents the term (13) of p. xxii, with arguments Variation and Latitude; Table XLIII the terms (14), with arguments M, J, *i.e.* h_4''', h_0'''; and Table XLIV the terms (14), (15) together; the former applying to eclipses and occultations only, the latter to shadows and transits. It will be noticed that the term (15) represents (9), which is not liable to any objection on the count of convergency, but as it runs with the same arguments as (10), (11) it is included in the same treatment with them, a course which presents no difficulties. The table of the main term of the semiduration which follows breaks into two portions, to correspond with the break in the treatment of ζ_4. For latitudes between 0·50 and 0·95 and between 2·50 and 2·05, corrected by the equations of Tables XLII and XLIII or XLIV, Table XLV*a* gives the value of term (1) of p. xxii in column 2, and term (7) of the same page, by applying the correction of column 5. To this table no constant has been applied on account of the terms dealt with under Tables XLII–XLIV. Table XLV*b* is the continuation of the same table for the remaining range of latitude. It is to be used in conjunction with the tables which follow and represent the terms (2), (4), (5), (8)–(11) of p. xxii. Of these Table XLVI, with arguments Variation and Latitude, represents the term (2) or (8), which do not differ sensibly for the range of ξ_4 that occurs. This table may be considered as complementary to Table XLII, one or the other applying in every case, but XLII treating the term considered by a correction to ζ_4, while XLVI treats it as an addition to the semiduration. Table XLVII, in the same way, is complementary to Table XLIII, and represents the terms (4), (5) of p. xxii, which apply to eclipses and occultations, while Table XLVIII, applying to shadows and transits, represents terms (9), (10), (11), which were dealt with in the other range of latitude by Table XLIV. Constants have been applied to render the equations of Tables XLVI–XLVIII positive, and their sum is of course removed from the entries of Table XLV*b*. Three small equations follow. Table XLIX represents the term (3) of p. xxii; this term appears only in eclipses and occultations, and so is given without added constant, and therefore with its natural sign. Table L represents the term arising from the equation of light which is given on p. xxiv, and Table LI the terms (6), (12) of p. xxii, which apply to occultations and transits only; the convergence of this last table becomes faulty at the limits of latitude, but not to a degree that can be considered important for these phenomena.

The tables which follow, LII–LX, give the Reduction to Middle for the several phenomena and represent the formulæ of p. xx. They require no special comment. To the first of them a constant portion of the equation of light has been added, in accordance with p. xxiv. Their sum will appear with a natural sign, which must be preserved, and is to be corrected by adding to it its product by the Variation.

Introduction

The corrections for Jupiter s Phase which follows—Table LXI—is used as for the other Satellites but in this case the additional equation of semiduration is insensible as shown on p xxiii

The several elements of time of true conjunction reduction to middle semiduration and equation of light having been calculated the apparent time of each phenomenon is found as for the other Satellites

The tables of the phenomena conclude with tables specifying the rate of progress of an eclipse in agreement with the formulæ of pp xxiii xxiv With any latitude Table LXII gives a light curve which shows the rise of magnitude *m* with the progress of (*k*) which is proportional to the time its motion per second being given by Table LXIII corrected by Table LXIV

AUXILIARY TABLES

These tables are common to all the Satellites and have been almost sufficiently described incidentally A little repetition must be tolerated

Tables C CI are derived from Hill s *Tables of Jupiter* p 144 and give the reduction of Jupiter s ecliptic longitude to his orbit The formula is given above p xix In the same place the formula is given for Tables CII CIII which show how to reduce to Jupiter s orbit annual parallax computed upon the ecliptic

Table CIV shows the main part of the equation of light tabulated with the logarithm of Jupiter s true distance from the earth at the time of conjunction as argument The minor portions of the equation are enumerated on p xxiv of these (1) and (3) have been included in Tables XLV XLIII respectively for Satellite I and the corresponding tables for the other satellites Table CV gives the value of (2) The remaining tables hardly need description Table CVI shows the conversion of ′ into decimals of a degree Table CVII makes the opposite conversion Tables CVIII CIX in the same way convert decimals of a day into ^{h} ^{m} and back again

This completes the description of the tables it only remains to illustrate their use by examples

Tables of the Four Great Satellites of Jupiter

Examples of the Use of the Tables

The following examples illustrate the use of the tables for finding the longitude, latitude and radius vector of a Satellite at any given time, and also the times of ingress and egress of all the phenomena. The rate of progress of an eclipse is also calculated, as this is required for deducing from a set of photometric observations the instant of half-brightness.

In calculating the sequence of phenomena which occur in a single revolution of the Satellite—eclipse, occultation, shadow-transit, transit of disc,—the arguments may be derived from one another with only a single reference to the tables, but the equations belonging to these arguments must be taken out independently, since the periods are for the most part short and the equations go through large changes in short intervals of time, nor is it admissible to calculate, say, the eclipses, and then interpolate in some manner for the other phenomena. But it is legitimate, when a continuous sequence of eclipses, etc., is required, to calculate, say, for Satellite I every fourth eclipse only in full, and interpolate the eclipses intermediate between these, and similarly for the occultations and the other phenomena.

The tables of longitude recognise all inequalities of which I find the coefficient of longitude to amount to $1''$ or over. This is equivalent in the times of the phenomena to the following amounts: for Satellite I $0^{s}{\cdot}12$, for Satellite II $0^{s}{\cdot}24$, for Satellite III $0^{s}{\cdot}48$, for Satellite IV $1^{s}{\cdot}12$. A rule of about the same rigour in point of time is applied to the equations which enter through the latitude. Hence while the tabulation runs for all four Satellites to $0^{d}{\cdot}000001$, *i.e.*, to $0^{s}{\cdot}0864$, and is correctly made up to that point for all the terms properly included, it is by no means complete to that point for Satellite IV and even for Satellite III. It may be remembered then that for these two Satellites the last digit in tables of time cannot be insisted upon, and is to be regarded merely as a guard-figure; this will facilitate interpolations, especially in the tables of double entry.

Among the accessory quantities which are found with the help of the *Nautical Almanac*, the longitude of Jupiter (♃) is given as reduced to Jupiter's orbit by Table CI, and referred to the *mean* equinox; the Sun's longitude (☉) is its *true* place, referred to the *mean* equinox; the annual parallax (p) is reduced to Jupiter's orbit by Tables CII, CIII.

The longitude of the Satellite which is found is referred to Jupiter's orbit; the radius vector is for Jupiter's mean distance; the angle corresponding to the latitude is above Jupiter's orbit. The complement has been added as a correction to the arguments of latitude before the latitude was taken out.

SATELLITE I

The examples calculated are the six phenomena:—1909 June 1, *Occultation Disappearance*; June 2, *Transit Ingress*, *Shadow Ingress*, *Transit Egress*, *Shadow Egress*; June 3, *Eclipse Reappearance*. Incidentally they show how to find the longitude, latitude and radius vector, since the exact values of these are required at the approximate times of conjunction.

SATELLITE I—APPROXIMATE CONJUNCTIONS 1909 JUNE 1 2 3

	Superior Geoc Arguments	Superior Geoc Equations	Inferior Geoc Arguments	Inferior Geoc Equations	Inferior Helioc Arguments	Inferior Helioc Equations	Superior Helioc Arguments	Superior Helioc Equations
I II	(5667 4) 1670 5 152 α 1822 7	IV — 0641 V 91 VI 23	α 1823 6	IV — 0640 V 91 VI 23	18 3 6	IV V VI *Ibid*	α 1824 5	IV V VI
I II	(601 12) 341 64 15 21 β 94 97	p — 0527	β 95 85	p — 0526	β 95 85	p — 0526	β 96 72	p
I II	(634 7) 363 5 152 2 γ 150 4		γ 151 3		γ 151 3		γ	
I II III p	(8 37) 1 760 613 42 — 53 δ 0 599	I 0680 II 1 2080 III 423 p — 527 VII 11 VIII 4	δ 1 484	I, II } 2 1609 III 423 p — 526 VII 49 VIII 5	δ 1 537	I, II } 2 1609 III 423 p VII 46 VIII 5	δ 0 659	I, II } 3 0458 III 422 p VII 14 VIII 5
I II III p	(8 23) 93 6 4 — 5 ε 0 98	June 1 2671	ε 0 09	June 2 1560	ε 0 14	June 2 2083	ε 1 03	June 3 0899

The numbers in ( ) are the complements of the periods of the arguments thus for argument β in place of subtracting 398^d 88 we add 601^d 12 when it is necessary The arguments for Inferior Geocentric Conjunction are got from those for Superior Geocentric Conjunction by adding 0^d 8849 to each and do not involve a fresh reference to the tables similarly those for Superior Heliocentric are derived from Inferior Heliocentric the latter are the same as for Inferior Geocentric except that in δ ε the parallax p (-0^d 053) which was applied must be removed

ACCESSORY QUANTITIES DRAWN MAINLY FROM *Nautical Almanac*

Table C	☊	99 32 4	99 32 4		
	☉	70 35 30 5	71 26 34 1		
	log R	006169	006224		
	log Δ	733410	734528	734594	735698
	♃	166 42 24 3	166 46 28 6	166 46 43 0	166 50 45 3
	p	—10 44 17 9	—10 43 35 7		
	To compare with Sat	155 96844	156 04803	166 77861	166 84592
XXXV	⊕ Jovic Lat	— 01299	— 01260		

Tables of the Four Great Satellites of Jupiter

Satellite I—Longitude, Latitude and Radius Vector

Arguments

		IX	X	1909 June 1·267100	June 2·156000	June 2·208300	June 3·089900
A	(6·47454)	1·68954	·67217	2·36171	3·25061	3·30291	0·65905
B	(7·650)	1·102	1·847	0·599	1·488	1·540	2·422
C	(8·229)	0·325	1·773	0·327	1·216	1·268	0·379
D	(8·231)	0·626	1·885	0·742	1·631	1·683	0·796
E	(8·231)	0·990	1·889	1·110	1·999	0·282	1·164
F	(598·84)	110·31	152·27	262·58	263·47	263·52	264·40
G	(542·33)	32·46	152·27	184·73	185·62	185·67	186·55
H	(517·70)	50·46	152·27	202·73	203·62	203·67	204·55
I	(514·41)	436·53	152·27	103·21	104·10	104·15	105·03
J				1909·417	1909·420	1909·420	1909·422
K	(8·23086)	·85876	1·89039	−10 0·98001	−10 1·86891	+10 1·92121	+9 1·03367
L	(8·232)	·875	1·989	1·096	1·985	0·269	1·151
M	(8·231)	1·513	1·914	1·658	0·778	0·830	1·712
N	(8·23)	0·98	1·90	1·11	2·00	0·28	1·16
O	(8·2)	0·7	1·9	0·0	0·9	0·9	0·0
P	(9·116)	0·867	1·056	0·155	0·160	0·212	0·210
Q	(9·12)	0·30	1·02	0·44	0·45	0·50	0·50

Longitude

	June 1·267100	June 2·156000	June 2·208300	June 3·089900
IX	130°·31800	130°·31800	130°·31800	130°·31800
X	330·32685	173·81584	173·81584	17·30483
XI	52·90714 1·44477	30·52335 1·22093	40·69780 1·68896	16·27912 2·01454
XII	·88068	8726	·14234	8095
XIII	120	542	551	327
XIV	1089	109	79	1119
XV	706	298	371	632
XVI	63	339	360	40
XVII	1394	1400	1400	1405
XVIII	625	621	621	617
XIX	1435	1425	1425	1416
XX	744	745	745	746
XXI	444	444	444	444
XXII	4366	4267	3296	3338
XXIII	84	83	76	77
XXIV	50	52	61	61
	155°·98864	336°·06863	346°·75723	166°·82866
Compt.	−0°·02020	−0°·02060	+0°·02138	+0°·01726
XXXVIII	−0d·000099	−0d·000101	+0d·000105	+0d·000085
Varn.	,,	,,	−1	,,

Variation

	June 1·267100	June 2·156000	June 2·208300	June 3·089900
XXV	+·00397	−·00495	−·00617	+·00544
XXVI	13	10	10	9
XXVII	7	14	12	8
XXVIII	16	4	3	17
XXIX	12	8	9	11
	+·00445	−·00459	−·00583	+·00589
Rad. Vec.	112″·03	111″·52	111″·46	112″·11

Latitude

	June 1·267100	June 2·156000	June 2·208300	June 3·089900
XXX	·23744	·46747	·52440	·17871
XXXI	96	508	544	57
XXXII	108	189	171	128
XXXIII	9	42	44	6
XXXIV	4525	4525	4525	4525
XXXV	−1299	1260	,,	,,
XXXVI	,,	13	19	,,
	·27183	·53284	·57743	·22587
XXXVII	−1°·0538	+1°·0989	+1°·6213	−1°·5929

Satellite I—Phenomena 1909 June 1 2 3

	Occult tion Dis	Transit Ing and Eg	Shadow Ing and Eg	Eclipse Re
	Semidurations			
XL	d 0 047261	d 0 047179	d 0 046844	d 0 046924
XLI	45	9	15	46
XLII	− 3			− 3
XLIII	10	10	10	10
XLIV	354	144	118	384
	0 047667	0 04734 Eg	0 046987 Ing	0 047361
LI		15 −846	15 −840	
		0 046511 Ing	0 046162 Eg	
	Reductions to Middle			
XLV	−0 000284	−0 000408	−0 000530	−0 000384
XLVI	−29			
XLVII		−37		
XLVIII	62	7	10	58
XLIX	4	4	3	3
L	5	5	6	6
Var	−1	2	3	−2
	−0 000243	−0 000427 Eg	−0 000508 Ing	−0 000319
LI		+16	+19	
		−0 000411 Ing	−0 000489 Eg	
	Apparent Times of the Phenomena			
CIV CV	d 0 031237	d 0 031317	d 0 031322	
Approx	1 267100	2 156000	2 208300	
Comp	− 99	− 101	104	
Semidur	−47667	−46511	−46987	
Reduction	− 243	− 411	− 508	
	−48009 ←	−47023 ←	−47495 ←	
	June 1 250328	June 2 140294	June 2 192231	
CIV CV		0 031317	0 031322	d 0 031401
Approx		2 156000	2 208300	3 089900
Comp		− 101	104	85
Semidur		47342	46162	47361
Reduction	←	− 427	− 489	−319
		−528 ←	− 489 ←	−319 ←
		June 2 234131	June 2 285399	June 3 168428
CVIII LIII LIV	Oc Dis June (d h m) 1 6 0 28 3	Tr Ing June (d h m) 2 3 22 1 4 Eg 5 37 8 9	Sh Ing June (d h m) 2 4 36 48 8 Eg 6 50 58 5	Ecl Re June (d h m) 3 4 2 32 2 Δk per sec — 0450

SATELLITE II

The phenomena calculated are the following:—1892 Sep. 6, Eclipse Disappearance; Sep. 8, Shadow Ingress, Transit Ingress, Shadow Egress, Transit Egress; Sep. 10, Occultation Reappearance.

	Arguments	Equations (Superior Helioc.)	Arguments	Equations (Inferior Helioc.)	Arguments	Equations (Inferior Geoc.)	Arguments	Equations (Superior Geoc.)
I II	(5667·4) 4128·9 α 248·8 4377·7	IV ” V ” VI ”	α 4379·5	IV + 305 V 241 VI 138	α 4379·5	IV + 305 V 241 VI 138	α 4381·3	IV + 274 V 240 VI 139
I II	(601·12) 117·70 β 248·79 366·49	p ”	β 368·27	p + ·0684	β 368·27	p + ·0684	β 370·05	p + ·0653
I II	(634·7) 0·5 γ 248·8 249·3		γ 251·1		γ 251·1		γ 252·9	
I II III p	(6·475) 1·090 2·004 ·084 δ ... 3·178	I 1·8046 II 4·7866 III 838	δ 1·430	I 3·5816 II 4·7866 III 840	δ p +68 1·430 1·498	I 3·5816 II 4·7866 III 840	δ p+·065 3·207 3·272	I 5·3587 II 4·7866 III 841
I II III p	(6·45) 0·32 ·20 ·08 ε ... 0·60	p ” VII 212 VIII 53 Sept. 6·7015	ε 2·38	p ” VII 91 VIII 53 Sept. 8·4666	ε p + 7 2·38 2·45	p + 684 VII 102 VIII 53 Sept. 8·5361	ε p + 7 4·16 4·23	p + 653 VII 196 VIII 52 Sept. 10·3195

Accessory Quantities

Table C	☊	99° 22′·2	99° 22′·2	99° 22′·2	99° 22′·2
	☉	”	”	166° 47′ 5″·9	168° 31′ 10″5
	log R_1	”	”	·002878	·002678
	log Δ	·615489	·613759	·613692	·612015
	♃	16° 37′ 25″·7	16° 47′ 8″·7	16° 47′ 31″·6	16° 57′ 20″·8
	p	”	”	+7° 2′ 24″·4	+6° 43′ 28″·5
	To compare with Sat.	16°·62380	16°·78575	23°·83222	23°·68036
XLV	⊕ Jovic. Lat.	”	”	+·05180	+·05261

Satellite II—Longitude Latitude and Radius Vector

89

S pt mb 67 5

	Arg t	
A	IX X (949 7) 7936 3 9 9 5	6 7 65
B	IX X (5 49) 3 99 59	7
C	IX X (6 44) 3 55 73	7
D	IX X (6 447) 3 4	3 7
E	IX X (6 4486) 994 9	5445
F	IX X (6 449) 4 5 5	979
G	IX X (598 84) 319 8 5 7	69 36
H	IX X (54 33) 3 9 5 7	3 94
I	IX X (5 7 7) 38 5 7	36 8
J	IX X (5 4 4) 54 6 5 7	3 5 3
K	IX X (8 3) 63 4	87
L	IX X (6 5) 4 3	3 35
M	IX X (6 500) 8	9
N	IX X (6 5) 3 6	86
O	IX X (6 4) 5 3 46	38
P		89 687
Q	IX X (6 4488) 375 883	— 4 6 5 5
R	IX X (8 47) 69 3 59	—1 997
S	IX X (8 4) 38 8	— 49
T	IX X (8) 76	3
U	IX X (6 44997) 345 7 99 8	—1 4 3 544 5
V	IX X (6 5) 4	4
W	IX X (6 449) 79 37	— 376
X	IX X (6 45) 48	5
Y	IX X (6 5) 7	8
Z	IX X (6 4) 1 3 7	3

L gt d	
IX	6 87
X	43 69 4
XI	7 96 33 5 6
XII	46 9
XIII	64
XIV	
XV	43
XVI	6496
XVII	964
XVIII	736
XIX	48
XX	8955
XXI	3
XXII	5
XXIII	37
XXIV	36
XXV	74
XXVI	61
XXVII	3555
XXVIII	9
XXIX	96
XXX	4
XXXI	6
XXXII	
	6 75 39
C p XLVIII V	—o^d 759 6 +

V t	
XXXIII	— 67
XXXIV	
XXXV	35
XXXVI	34
	— 59
R d V	76 44

L tt d	
XXXVII	7333
XXXVIII	8897
XXXIX	54
XL	87
XLI	
XLII	74
XLIII	38
XLIV	5
XLV	
XLVI	
	7526
XLVII	+ 7 58

S pt mb 8 4666

A g m t	
A	4 68
B	3 84
C	3 49
D	39
E	3 96
F	744
G	7 3
H	57
I	363 85
J	3 7 8
K	87
L	7
M	557
N	3
O	5
P	89 69
Q	—3 37 5
R	—3 895
S	479
T	3
U	—3 759
V	7
W	4
X	8
Y	1
Z	

L gt d	
IX	6 87
X	346 43994
XI	46 63 39 669 7
XII	1 65934
XIII	7
XIV	89
XV	769
XVI	744
XVII	3
XVIII	17 8
XIX	65
XX	895
XXI	3 8
XXII	5
XXIII	9
XXIV	368
XXV	1 9
XXVI	
XXVII	355
XXVIII	8
XXIX	8
XXX	14
XXXI	6
XXXII	5
	96 8 678
C p XLVIII V	= d 3 3 3 6 —5

V t	
XXXIII	+ 1447
XXXIV	3
XXXV	6
XXXVI	7
	+ 6
R d V	179 8

L tt d	
XXXVII	3 6
XXXVIII	9 33
XXXIX	49
XL	337
XLI	91
XLII	7
XLIII	6
XLIV	5
XLV	
XLVI	—8
	984
XLVII	— 68

S l t b 8 536

A g t	
A	4963
B	3 9
C	3 55
D	3 9
E	379
F	8 4
G	7 9
H	5 77
I	363 91
J	3 7 4
K	6
L	78
M	6 7
N	9
O	2 1
P	89 69
Q	+9 43975
R	+9 359
S	+ 548
T	37
U	+9 1 8 872
V	7
W	+1 1
X	88
Y	
Z	

L gt d	
IX	6 87
X	346 43994
XI	53 7 862 6 8 5
XII	1 5454
XIII	
XIV	99
XV	1695
XVI	5
XVII	69
XVIII	17 7
XIX	66
XX	895
XXI	3 9
XXII	57
XXIII	3
XXIV	38
XXV	8
XXVI	8
XXVII	355
XXVIII	441
XXIX	91
XXX	7
XXXI	5
XXXII	8
	3 74 63
C mp^t XLVIII V	+ d 9 59 + 009 4 +15

V t	
XXXIII	+ 1565
XXXIV	3
XXXV	
XXXVI	3
	+ 7 9
R d V	179 38

L tt d	
XXXVII	8
XXXVIII	82
XXXIX	49
XL	96
XLI	8
XLII	7
XLIII	6
XLIV	5
XLV	—518
XLVI	— 89
	13736
XLVII	—2 9139

S pt mb 3 95

A g t	
A	3 797
B	8
C	78
D	3 09
E	6
F	46
G	7 98
H	7 56
I	365 7
J	3 8 93
K	95
L	3 57
M	4
N	98
O	4
P	89 697
Q	—7 0 67 97
R	— 367
S	556
T	38
U	—7 0 6 9
V	
W	443
X	
Y	9
Z	3

L gt d	
IX	16 87
X	189 8946
XI	3 4 6 8 963 6
XII	6 7 4
XIII	4
XIV	
XV	313
XVI	67
XVII	9 6
XVIII	679
XIX	83
XX	8948
XXI	3 57
XXII	58
XXIII	6
XXIV	6
XXV	57
XXVI	63
XXVII	3546
XXVIII	15 4
XXIX	8
XXX	8
XXXI	4
XXXII	79
	3 687 8
C m^t XLVIII V	— 69 — d 000 68 +

V t	
XXXIII	— 834
XXXIV	8
XXXV	4
XXXVI	37
	— 748
R d V	176 3

L tt d	
XXXVII	1 7
XXXVIII	9897
XXXIX	5
XL	9
XLI	2
XLII	7
XLIII	38
XLIV	5
XLV	+5 61
XLVI	
	66 8
XLVII	+2 9345

Tables of the Four Great Satellites of Jupiter

Satellite II—Phenomena, 1892 September 6, 8, 10

Semidurations

	Eclipse, Dis.	Shadow, Ing. and Eg.	Transit, Ing. and Eg.	Occultation, Re.
L	d 0·052414	d 0·052487	d 0·049121	d 0·049060
LI	+7	”	”	+7
LII	7	7	7	8
LIII	”	”	−11	11
LIV	69	”	”	68
LV	”	54	58	”
LVI	333	935	854	402
	0·052830	0·053483 Eg.	0·050029 Ing.	0·049556
LXVI		+2 −395	+2 −369	
		0·053090 Ing.	0·049662 Eg.	

Reductions to Middle

	Eclipse, Dis.	Shadow, Ing. and Eg.	Transit, Ing. and Eg.	Occultation, Re.
LVII	d −0·001118	d −0·001397	d −0·001238	d −0·000994
LVIII	91	64	32	67
LIX	26	94	88	34
LX	3	37	37	3
LXI	6	4	5	7
LXII	7	7	6	6
LXIII	31	31	26	26
LXIV	”	”	”	−47
LXV	”	”	−62	”
Var.	+15	−19	−19	+16
	−0·000939	−0·001179 Eg.	−0·001125 Ing.	−0·000882
LXVI	”	+17	+16	
		−0·001162 Ing.	−0·001109 Eg.	

Apparent Times of the Phenomena

	Eclipse, Dis.	Shadow, Ing. and Eg.	Transit, Ing. and Eg.	Occultation, Re.
CIV, CV	d 0·023805	d 0·023710	d 0·023706	
Approx.	6·701500	8·466600	8·536100	
Comp^t.	−1240	−311	919	
Semidur^n.	−52830	−53090	−50029	
Reduction	−939	−1162	−1125	
	−55009 ←	−54563 ←	−51154 ←	
	6·670296	8·435747	8·509571	
CIV, CV		0·023710	0·023706	d 0·023615
Approx.		8·466600	8·536100	10·319500
Comp^t.		−311	919	−67
Semidur^n.		53483	49662	49556
Reduction		−1179	−1109	−882
		−1490 ←	−1109 ←	−949 ←
		8·542303	8·609278	10·391722
CVIII	Ecl. Dis. Sept. 6 16 5 13·6 (d h m s)	Sh. I. Sept. 8 10 27 28·5 (d h m s) Sh. E. 8 13 0 55·0	Tr. I. Sept. 8 12 13 46·9 (d h m s) Tr. E. 8 14 37 21·6	Oc. R. Sept. 10 9 24 4·8 (d h m s)
LXVIII, LXIX	Δk per 1^s +·0200			

Introduction

SATELLITE III

The following phenomena are calculated together with the places of the Satellite that are necessary for this purpose —1910 March 31 Eclipse Disappearance and Reappearance April 3 Shadow Ingress and Egress Transit Ingress and Egress The Occultation which takes place on March 31 is also calculated but it is invisible since both phases occur while the Eclipse is in progress

	Superior Helioc Arguments	Superior Helioc Equations	Superior Geoc Arguments	Superior Geoc Equations	Inferior Helioc Arguments	Inferior Helioc Equations	Inferior Geoc Arguments	Inferior Geoc Equations
I II	(5667 4) 20397 7 α 86 0 21257	IV V VI	α 2125 7	d IV —0 0359 V 312 VI 13	α 2129 3	d IV —0 0507 V 318 VI 12	α 2129 3	d IV —0 0512 V 318 VI 12
I II III	(601 12) 311 78 86 00 β 13 397 91	*p*	β 397 91	*p* —0 0034	β 2 61	*p* —0 0177	β 2 61	*p* —0 0182
I II III	(634 7) 2 0 86 0 γ 1 88 1		γ 88 1		γ 91 7		γ 91 7	
I II III *p*	(2 95) 2 41 1 39 13 δ 3 93		δ 3 93		δ 7 51		δ 7 51 *p*— 02 7 49	
I II III *p*	(2 84) 3 38 13 13 3 64		3 64		ε 7 22		ε 7 22 *p*— 02 7 20	
I II III *p*	(2 85) 4 88 14 13 ζ 5 15	d I 4 1261 II 26 9966 III 1260 *p* VII 16 VIII 42 IX 34 X 28	ζ 5 15	d I 4 1261 II 26 9966 III 1260 *p* — 34 VII 16 VIII 42 IX 34 X 28	ζ 8 73	d I 7 7093 II 26 9966 III 0 1255 *p* VII 24 VIII 38 IX 6 X 28	ζ 8 73 *p*— 02 8 71	d I 7 7093 II 26 9966 III 1255 *p* — 182 VII 24 VIII 39 IX 6 X 28
I II III *p*	(2 85) 4 36 14 13 η 4 63	Mar 31 2607	η 4 63	Mar 31 2573	η 8 21	April 3 8410	η 8 21 *p*— 02 8 19	April 3 8229

N t —Th d t t pply th q t fT bl III t th t f m l 6 fT bl I h w b h b d t lly m tt d f m th f t fp 14

Accessory Quantities

C ☊	99 32 8	99 32 8	99 32 8	99 32 8
⊙		10 9 22 5		13 40 16 1
log R		9 999714		0 000171
log Δ	0 648767	0 648767	0 648919	0 648918
♃	189 41 43 8	189 41 42 9	189 57 58 0	189 57 53 1
p		—0 6 12 7		—0 49 55 1
To compare with Sat	189 69550	189 59172	189 96611	189 13278
XLIII ⊕ Jovic Lat		—0 08210		—0 08195

Tables of the Four Great Satellites of Jupiter

Satellite III—Longitude, Latitude and Radius Vector

Arguments

Tables	Argument	1910 March 31·260700				March 31·257300	April 3·841000	April 3·822900
XI, XII	A	(2·94907)	5·32952	5·64957	3·92816	3·92476	0·45753	0·43943
XI, XII	B	(87·477)	5·426	2·598	8·024	8·021	11·604	11·587
XI, XII	C	(2·84)	6·35	4·32	3·51	3·51	7·09	7·07
XI, XII	D	(2·8445)	6·4003	4·3943	3·6391	3·6357	0·0639	0·0458
XI, XII	E	(2·8452)	0·7529	4·4029	5·1558	5·1524	1·5813	1·5632
XI, XII	F	(3·05)	4·29	6·87	4·21	4·21	0·84	0·82
XI, XII	G	(3·05)	2·82	6·86	2·73	2·73	6·31	6·29
XI, XII	H	(2·82)	6·62	4·13	3·57	3·57	7·15	7·13
XI, XII	I	(49·84)	38·18	40·10	28·12	28·12	31·70	31·68
XI, XII	J	(599)	74	90	164	164	168	168
XI, XII	K	(542·33)	397·46	90·26	30·05	30·05	33·63	33·61
XI, XII	L	(517·70)	415·46	90·26	23·42	23·42	27·00	26·98
XI, XII	M	(514·41)	315·94	90·26	406·20	406·20	409·78	409·76
XI, XII	α	(5667·4)	2035·4	90·3	2125·7	2125·7	2129·3	2129·3
XI, XII	N				1910·2	1910·2	1910·3	1910·3
XI, XII	O	(2·84545)	0·23627	4·40607	+12 / 4·64234	+146 / 4·63894	+81 / 1·06809	+239 / 1·04999
XI, XII	P	(6·42)	1·68	0·86	2·54	2·54	2·54	2·52
XI, XII	Q	(6·423)	0·444	0·835	1·279	+1 / 1·276	+1 / 1·282	+2 / 1·263
XI, XII	R	(6·42)	3·37	0·83	0·62	0·62	0·62	0·60
XI, XII	S	(2·8464)	0·6527	4·4180	+1 / 5·0707	+15 / 5·0673	+8 / 1·4974	+24 / 1·4793
XI, XII	T	(2·85)	3·12	4·46	0·43	0·43	4·01	3·99
XI, XII	U	(2·846)	6·502	4·409	3·757	+1 / 3·754	+1 / 0·183	+2 / 0·166
XI, XII	V	(2·8)	5·6	4·2	2·6	2·6	6·2	6·2

Longitude

Table	March 31·260700	March 31·257300	April 3·841000	April 3·822900
XI	327°·60053	327°·60053	327°·60053	327°·60053
XII	208·58817	208·58817	359·54110	359·54110
XIII	13·08259	12·57941	42·26682	41·26047
XIII	3522	·36732	5032	·14592
XIV	9449	9430	4060	4167
XV	3719	3719	892	880
XVI	48	48	52	52
XVII	·19066	·19117	·20978	·20701
XVIII	749	752	·15257	·15234
XIX	149	149	46	47
XX	28	28	69	70
XXI	101	101	99	98
XXII	925	925	1145	1144
XXIII	31	31	32	32
XXIV	267	267	253	253
XXV	902	902	932	932
XXVI	50	51	57	56
XXVII	1326	1326	1333	1333
XXVIII	1009	1009	1005	1005
XXIX	208	201	215	178
XXX	7	7	7	8
XXXI	223	222	225	216
XXXII	16	16	16	17
	189°·68924	189°·51844	9°·92550	9°·01225
Compt. XLVI	+0°·00626	+0°·07328	+0°·04061	+0°·12053
Varn.	+0d·000124 ,,	+0d·001459 +3	+0d·000808 −2	+0d·002400 −5

Variation

Table	March 31·260700	March 31·257300	April 3·841000	April 3·822900
XXXIII	−·00616	−·00616	−·00382	−·00381
XXXIV	41	41	27	27
XXXV	623	623	17	17
XXXVI	164	164	117	115
	+·00212	+·00212	−·00221	−·00222
Rad. Vec.	283″·99	283″·99	283″·38	283″·38

Latitude

Table	March 31·260700	March 31·257300	April 3·841000	April 3·822900
XXXVII	0·22133	0·22223	1·58032	1·57300
XXXVIII	3183	3185	·12822	·12803
XXXIX	735	735	1067	1059
XL	846	849	1156	1143
XLI	119	119	41	41
XLII	20	20	20	20
XLIII	,,	−8210	,,	+8195
XLIV	,,	,,	+201	+ 199
	0·27036	0·18921	1·73339	1·80760
XLVIII	−10	−41	−10	−41
	0·27026	0·18880	1·73329	1·80719
XLV	−2°·6096	−2°·6062	+2°·6158	+2°·5882

Satellite III—Phenomena 1910 March 31 April 3

Semidurations

	Eclipse Dis and Re	Occultation Dis and Re	Shadow Ing and Eg	Transit Ing and Eg
	d	d	d	d
XLIX	0 052042	0 044495	0 051610	0 044793
L	,			
LI	−17	−17		
LII	10	10	10	10
LIII		34		−34
LIV	130	130		
LV			114	113
	0 052165	0 044652	0 051734 Ing	0 044882 Eg
LXV			0	0
			−6	−5
			0 051728 Eg	0 044877 Ing

Reductions to Middle

	Eclipse Dis and Re	Occultation Dis and Re	Shadow Ing and Eg	Transit Ing and Eg
	d	d	d	d
LVI	−0 001856	−0 001859	−0 002395	−0 002411
LVII	2	2	2	2
LVIII	134	133	113	108
LIX	15	15	10	11
LX	5	5	6	5
LXI	10	10	11	11
LXII	26	26	14	14
LXIII		−157		
LXIV				−207
Var	−3	−4	+5	+5
	−0 001667	−0 001829	−0 00 34 Ing	−0 00 462 Eg
LXV			−0 002234 Eg	−0 002462 Ing

Apparent Times of the Phenomena

	Eclipse Dis and Re	Occultation Dis and Re	Shadow Ing and Eg	Transit Ing and Eg
	d	d	d	d
CIV CV	0 025702	0 025702	0 025711	0 025711
Approx	Mar 31 260700	Mar 31 257300	Apr 3 841000	Apr 3 822900
Comp	124	1462	806	2395
Semidur	−52165	−44652	−51734	−44877
Reduction	− 1667	− 1829	− 2234	− 2462
	−53832 ←	−46481 ←	−53968 ←	−47339 ←
	Mar 31 232694	Mar 31 237983	Apr 3 813549	Apr 3 803667
CIV CV	0 025702	0 025702	0 025711	0 025711
Approx	Mar 31 260700	Mar 31 257300	Apr 3 841000	Apr 3 822900
Comp	124	1462	806	2395
Semidur	52165	44652	51728	44882
Reduction	− 1667	− 1829	− 2234	− 2462
	−1667 ←	−1829 ←	−2234 ←	−2462 ←
	Mar 31 337024	Mar 31 327287	Apr 3 917011	Apr 3 893426
	d h m	d h m	d h m	d h m
CVIII	Ecl Dis Mar 31 5 35 4 8	Occ Dis Mar 31 5 42 41 7	Sh Ing Apr 3 19 31 30 6	Tr Ing Apr 3 19 17 16 8
	Re 8 5 18 9	Re 7 51 17 6	Eg 22 0 29 8	Eg 21 26 32 0
LXVII, LXVIII	$\Delta(k)$ per 1 ± 00748			

Tables of the Four Great Satellites of Jupiter

SATELLITE IV

The phenomena calculated below are, 1886 April 30, Eclipse and Occultation, followed by May 8, Shadow and Transit. All these phenomena are very near the limits. The occultation reappearance takes place before the eclipse begins, so that the complete set of phenomena would be visible. In the course of the calculation the places of the Satellite are found.

	Superior Helioc. Arguments	Superior Helioc. Equations	Superior Geoc. Arguments	Superior Geoc. Equations	Inferior Helioc. Arguments	Inferior Helioc. Equations	Inferior Geoc. Arguments	Inferior Geoc. Equations
 I II	(5667·4) 1939·5 α 117·3 2056·8	IV ,, V ,, VI ,,	α 2056·8	d IV — 0·4545 V 968 VI 132	α 2065·2	d IV — 0·5069 V 980 VI 151	α 2065·2	d IV — 0·5069 V 980 VI 151
 I II III	(601·12) 321·15 117·27 β ·34 39·88	p ,,	β 39·88	p — 0·3445	β 48·26	p — 0·3938	β 48·26	p — 0·3938
 I II III	(634·7) 2·1 117·3 γ ·3 119·7		γ 119·7		γ 128·1		γ 128·1	
 I II III p	(83·310) 11·755 ·442 ·339 δ ,, 12·536		δ 12·536 p — ·345 12·191		δ 4·220		δ 4·220 p — ·394 3·826	
 I II III p	(83·31) 9·79 ·45 ·34 ε ,, 10·58		ε 10·58 p — ·34 10·24		ε 18·96		ε 18·96 p — ·39 18·57	
		d I 2·9991 II Apr.27·2749 III ·3386 p ,, VII 792 VIII 114		d I 2·9991 II Apr.27·2749 III ·3386 p — ·3445 VII 788 VIII 114		d I 11·3759 II Apr.27·2749 III ·3357 p ,, VII 9 VIII 114		d I 11·3759 II Apr.27·2749 III ·3357 p — ·3938 VII 12 VIII 113
		Apr. 30·7032		Apr. 30·3583		May 8·9988		May 8·6052

Accessory Quantities

☊	99° 18′·3	99° 18′·3	99° 18′·3	99° 18′·3
⊙	,,	40° 23′ 26″·8	,,	48° 22′ 35″·0
log R_1	,,	·003477	,,	·004324
log Δ	·670520	·670176	·679354	·678912
♃	184° 9′ 8″·0	184° 7′ 34″·2	184° 46′ 44″·5	184° 44′ 57″·4
p	,,	—7° 19′ 22″·1	,,	—8° 23′ 40″·6
To compare with Sat.	184°·15222	176°·80336	184°·77903	176°·35467
⊕, Jovic. Lat.	,,	—0·11874	,,	—0·10571

SATELLITE IV—LONGITUDE LATITUDE AND RADIUS VECTOR

886 | Ap 1 3 7 3 | Ap 1 3 358300 | M y 8 9988 | M y 8 6 5 00

	Agm t	
IX X	(8) 97 97	A 96
IX X	(5 49) 86 3 4	B 4 7
IX X	(87 477) 6 699 7 994	C 7
IX X	(83 3 6) 7 43 3 84	D 1 85
IX X	(83 3 954) 8 7 538 3 87	E 57538
IX X	(49 84) 67 387	F 2 57
IX X	(6) 5 8 3 43	G 3
IX X	(83 83) 4 4 983	H 4 397
IX X	(5667 4) 936 3 7	57
		I 886 3
IX X	(83 3 98) 6 745 5 3 88 9	J —5 6 5 4
IX X	(656) 5 34 3 885	K 883
IX X	(66) 5 8 3 9	L 36
IX X	(83 3 4) 3 94 9 3 8898	M —5 7 83 7
IX X	(83 3 6) 4 864 3 9 8	N — 8 78
IX X	(83 8) 3 39 97	O 6 36
IX X	(83) 75 2 51	P 5 6
IX X	(83 38) 4 3 4 33	Q 1 84
IX X	(83 5) 6 5 3 43	R 73

L gt d

IX X XI XII XIII XIV XV XVI XVII XVIII XIX XX XXI XXII XXIII XXIV XXV	3 436 68 533 6 15 9978 69 3 97 83 3983 35 48 6 333 3 3 57 4 3 4 59 6
	84 63
C mpt XL V	— d 0 79 — 0 5

V t

XXVI XXVII XXVIII XXIX	— 7 47
	— 37
R d V	498 89

L tt d

XXX XXXI XXXII XXXIII XXXIV XXXV XXXVI XXXVII XXXVIII	34475 6569 9 369 5 59 5
	5341
XLII XLIII XLIV	+ 6 + 62
	5349
XXXIX	— 9647

A g m t	L gt d	
A 6	IX X XI	3 436 68 533 6 7 54989 79 4
B 3 9	XII XIII XIV XV XVI	47 63 383 4 84
C 8 5	XVII XVIII XIX XX	5 3 334 3 8
D 74	XXI XXII XXIII XXIV XXV	57 1 447 47 68
E 3 48		
F 7		76 7 749
G 8 6	C mp XL V	+ d 7587 + 353 +5
H 4 5	V t	
2 56 7	XXVI XXVII XXVIII XXIX	+ 63 5 7 9
I 886 3		
J 8 34 +354		+ 51
	R d V	499 36
K 538		
L	L tt d	
M 7 4858 +35	XXX XXXI XXXII XXXIII XXXIV XXXV	46304 8 7 734 389 3 56
N 8 437	XXXVI XXXVII XXXVIII	7 — 1 874
O 6		54856
P 4 9	XLII XLIII XLIV	— 63 + 6
Q 1 49		54854
R 38	XXXIX	—1 6940

A g m t	L gt d	
A 36	IX X XI	00 3 436 41 3 1 3554 8983
B 3 55	XII XIII XIV XV XVI	53 5 593 438 7 488
C 0 466	XVII XVIII XIX XX	49 55 66 3 65
D 687	XXI XXII XXIII XXIV XXV	57 3 58 6
E 4 18 5		4 75535
F 9 353		
G 5	C mp XL V	+ d 368 + 001
II 693	Var t	
65 3	XXVI XXVII XXVIII XXIX	— 00 9 49 59
I 886 4		
J 3 8 +		+ 38
	R d V	499 8
K 835		
L 1 3	L tt d	
M 6 63 +	XXX XXXI XXXII XXXIII XXXIV XXXV	3 978 464 65 45
N 394	XXXVI XXXVII XXXVIII	54 + 46
O 14 66		2 45 89
P 6 68	XLII XLIII XLIV	+ 16 — 6
Q 1 4		45 44
R 1 3	XXXIX	+1 9 9

A g m t	I gt d	
A 1 94	IX X XI	3 436 41 3 1 94 67 1 7
B 3 5	XII XIII XIV XV XVI	93 5 569 62 1 717 4
C 7	XVII XVIII XIX XX	53 70 3 64
D 93	XXI XXII XXIII XXIV XXV	57 36 49 144 7
E 3 7869		356 25991
I 8 959		
G 8 3	C mp XL V	+ d 9476 + 00441 —8
H 2 99	V t	
64 8	XXVI XXVII XXVIII XXIX	— 3 7 44 63
I 886 4		
J 838 +44		— 00 79
	R d V	498 54
K 441		
L 9	L tt d	
M 5 73 7	XXX XXXI XXXII XXXIII XXXIV XXXV	8 67 93 8 678 44 48 5
N	XXXVI XXXVII XXXVIII	5 + 571 + 384
O 4 6		24 87
P 6 8	XLII XLIII XLIV	— 61 — 49
Q 9 74		40077
R 63	XXXIX	+1 6 19

Satellite IV—Phenomena, 1886 April 30, May 8

	Eclipse, Dis. and Re.	Occultation, Dis. and Re.	Shadow, Ing. and Eg.	Transit, Ing. and Eg.
Semidurations				
	d	d	d	d
XLV	0·026549	0·031205	0·030747	0·043824
XLVI	”	”	”	”
XLVII	”	”	”	”
XLVIII	”	”	”	”
XLIX	−50	−50	”	”
L	11	11	11	12
LI	”	+125	”	−77
	0·026510	0·031291	0·030758 Ing.	0·043759 Eg.
LXI	”	”	−335	−477
			0·030423 Eg.	0·043282 Ing.
Reductions to Middle				
	d	d	d	d
LII	−0·003732	−0·003744	−0·004879	−0·004839
LIII	364	502	322	510
LIV	158	146	167	151
LV	63	70	64	72
LVI	22	23	78	78
LVII	10	10	”	”
LVIII	”	”	90	90
LIX	”	−345	”	”
LX	”	”	”	−436
Var.	+1	−5	−2	+8
	−0·003114	−0·003343	−0·004160 Ing.	−0·004366 Eg.
LXI	”	”	+92	+97
			−0·004068 Eg.	−0·004269 Ing.
Apparent Times of the Phenomena				
	d	d	d	d
CIV, CV	0·027025	0·027003	0·027581	0·027552
Approx.	Apr. 30·703200	Apr. 30·358300	May 8·998800	May 8·605200
Comp^t.	− 502	3535	1102	4402
Semidur^n.	−26510	−31291	−30758	−43282
Reduction	− 3114	− 3343	− 4160	− 4269
	−30126	−34634	−34918	−47551
	Apr. 30·700099	Apr. 30·354204	May 8·992565	May 8·589603
CIV, CV	0·027025	0·027003	0·027581	0·027552
Approx.	Apr. 30·703200	Apr. 30·358300	May 8·998800	May 8·605200
Comp^t.	− 502	3535	1102	4402
Semidur^n.	26510	31291	30423	43759
Reduction	− 3114	− 3343	− 4068	− 4366
	− 3616	− 3343	− 4068	− 4366
	Apr. 30·753119	Apr. 30·416786	May 9·053838	May 8·676547
CVIII	Ecl., Dis. Apr. 30 16^h 48^m 8^s·6	Oc., Dis. Apr. 30 8^h 30^m 3^s·2	Sh., Ing. May 8 23^h 49^m 17^s·6	Tr., Ing. May 8 14^h 9^m 1^s·7
	Re. 18 4 29·5	Re. 10 0 10·3	Eg. 9 1 17 31·6	Eg. 16 14 13·7
LXIII, LXIV	$\Delta(k)_0$ per 1^s $\pm$·00119			

SATELLITE I

Approximate Tables

of true

Heliocentric and Geocentric Conjunction

SATELLITE I

Approximate Tables of Conjunction

I

Epochs of Conjunction

1	2	3	4	5	6	7	8
Year	Conjunction	Variation for 100^d	α	β	γ	δ	ϵ
	d		d		d	d	d
1850	1·0169	...	1786·1	333·32	0·5	1·342	·99
1851	0·6082	...	2150·8	299·03	365·1	1·048	1·14
*1852	0·1995	...	2515·6	264·74	364·4	·753	1·28
1853	0·5607	...	2882·1	232·21	0·3	·466	1·43
1854	0·1519	...	3246·7	197·92	364·9	·172	1·58
1855	1·5132	...	3613·2	165·40	0·7	1·648	1·73
*1856	1·1043	...	3977·5	131·11	0·0	1·353	·11
1857	1·4654	...	11·2	98·58	1·1	1·066	·26
1858	1·0566	...	375·7	64·29	0·5	·772	·41
1859	0·6479	...	740·2	30·00	365·1	·478	·56
*1860	0·2392	...	1104·9	394·59	364·4	·184	·71
1861	0·6003	...	1471·5	362·07	0·2	1·659	·86
1862	0·1918	...	1836·4	327·77	364·8	1·365	1·01
1863	1·5529	...	2202·8	295·25	0·7	1·078	1·16
*1864	1·1440	...	2567·0	260·96	0·0	·784	1·30
1865	1·5049	− ·0001	2932·8	228·44	1·1	·497	1·45
1866	1·0959	− ·0001	3296·9	194·14	0·4	·203	1·60
1867	0·6868	− ·0001	3660·6	159·85	365·0	1·671	1·75
*1868	0·2780	...	4024·9	125·56	364·3	1·377	·13
1869	0·6391	...	58·7	93·03	0·2	1·090	·28
1870	0·2306	+ ·0001	423·7	58·74	364·8	·796	·43
1871	1·5920	+ ·0001	790·8	26·22	0·6	·508	·58
*1872	1·1835	+ ·0001	1156·2	390·81	365·2	·214	·73
1873	1·5449	...	1523·1	358·29	1·1	1·690	·88
1874	1·1362	...	1888·0	323·99	0·4	1·396	1·02
1875	0·7275	...	2252·5	289·70	365·0	1·101	1·17
*1876	0·3186	− ·0001	2616·5	255·41	364·3	·807	1·32
1877	0·6794	− ·0001	2982·2	222·89	0·2	·520	1·47
1878	0·2703	− ·0001	3346·1	188·59	364·7	·226	1·62
1879	1·6312	...	3711·8	156·07	0·6	1·702	·00
*1880	1·2224	...	4076·3	121·78	365·2	1·407	·15
1881	1·5836	...	110·4	89·25	1·0	1·120	·30
1882	1·1752	+ ·0001	475·6	54·96	0·4	·826	·45
1883	0·7667	+ ·0001	840·8	20·67	364·9	·532	·60
*1884	0·3581	...	1205·8	385·26	364·3	·238	·75
1885	0·7192	...	1572·2	352·74	0·1	1·713	·89
1886	0·3104	...	1936·6	318·44	364·7	1·419	1·04
1887	1·6714	...	2302·6	285·92	0·5	1·132	1·19
*1888	1·2625	...	2666·8	251·63	365·1	·838	1·34
1889	1·6235	...	3032·8	219·11	1·0	·551	1·49
1890	1·2147	...	3397·3	184·81	0·3	·256	1·64
1891	0·8061	...	3762·2	150·52	364·9	1·725	·02
*1892	0·3975	...	4127·2	116·23	364·2	1·431	·17
1893	0·7588	...	161·4	83·71	0·1	1·144	·32
1894	0·3503	...	526·4	49·41	364·7	·849	·47
1895	1·7114	...	892·9	16·89	0·5	·562	·61
*1896	1·3027	...	1257·4	381·48	365·1	·268	·76
1897	1·6637	...	1623·6	348·96	0·9	1·744	·91
1898	1·2549	...	1987·8	314·67	0·3	1·449	1·06
1899	0·8459	...	2352·0	280·37	364·9	1·155	1·21
1900	0·4371	...	2716·4	246·08	364·2	·861	1·36
Period	...	...	4332·6	398·88	365·3	1·763	1·77

Column 2 corrected by the equations from the following tables, gives superior conjunction as required for Eclipses and Occultations. To find inferior conjunction for Shadows and Transits, add (or subtract) one half the synodic period, *i. e.* $0^d·8849$, to the numbers in columns 2, 4, 5, 6, 7, 8.

The constant $-0^d·0333$ has been applied to each of the entries in column 2.

The constant $-0^d·030$ has been applied to each of the entries in column 7.

The constant $-0^d·03$ has been applied to each of the entries in column 8.

For Eclipses the argument γ is not wanted.

SATELLITE I

Approximate Tables of Conjunction

I *continued*

Epochs of Conjunction

		3	4	5	6	7	8
Ye r	Coi jun tion	V iation fo 100^d	α	β	γ	δ	
	d		d			d	d
1900	0 4371		2716 4	246 08	364 2	861	1 36
1901	0284		3081 1	11 79	363 5	567	1 51
1902	1 3896		3447 8	179 6	364 6	8	1 66
1903	0 9810		3812 6	144 97	364	1 748	04
***1904**	0 5723		4177 3	11 68	363 3	1 454	19
1905	0 9333		210 8	78 16	364 4	1 167	34
1906	0 5 45		575	43 86	363 7	873	48
1907	0 1157		939 6	9 57	363 1	578	63
***1908**	1 4767		13 5 9	375 93	364	291	78
1909	0 0680		1670 5	341 64	363 5	1 760	93
1910	1 4291		2036 8	3 9 12	364 6	1 473	1 08
1911	1 0 05		401 6	74 8	363 9	1 179	1 3
***1912**	0 6118		766 3	40 53	363 3	884	1 38
1913	0 9730		313 8	208 01	364 4	597	1 53
1914	0 5642		3497 4	173 7	363 7	3 3	1 68
1915	0 1554		386 8	139 4	363 0	009	06
1916	1 5164		42 7 9	106 90	364 1	1 484	21
1917	1 76		259 6	7 61	363 5	1 19	35
1918	4687		6 6 0	4 8	364 6	903	50
1919	1 6		990 7	5 79	363 9	609	65
1920	0 6513		1355 5	370 38	363 2	315	8
1921	1 0126		17 2 1	337 86	364 3	8	95
1922	0 6040		2087 1	303 57	363 7	1 496	1 10
1923	1951		451 3	269 7	363 0	1 202	1 5
***1924**	1 5562		817 6	36 75	364 1	915	1 40
1925	0 1471	− 0001	3 81 4	02 46	363 4	621	1 55
1926	1 5080	− 0001	3547 0	169 94	364 5	334	1 7
1927	1 0989	− 0001	3910 9	135 64	363 9	39	08
1928	6901		4275	1 1 35	363 2	1 508	2
1929	1 0512		3 9	68 83	364 3	1 21	37
1930	6428	+ 0001	674	34 53	363 6	926	52
1931	0 343	+ 0001	1039 5	0 24	363 0	63	67
***1932**	1 5957	+ 0001	1406 6	366 6	364 1	345	8
1933	187		1771 8	33 31	363 4	051	97
1934	1 5484		138 3	299 79	364 5	1 5 7	1 12
1935	1 1396		2502 7	65 49	363 8	1 23	1 7
***1936**	0 7306	− 0 01	866 7	31 20	363 1	938	1 42
1937	1 0914	− 0 01	3 32 3	198 68	364 3	651	1 57
1938	0 68 3	− 0001	3596 1	164 39	363 6	357	1 71
1939	0 734		3960 3	130 9	362 9	063	09
***1940**	1 6345		43 6 5	97 57	364 0	1 538	4
1941	0 60	+ 01	358 9	63 28	363 3	1 244	39
1942	1 5873	+ 001	7 5 9	30 76	364 4	957	54
1943	1 1787		1091 0	395 35	363 8	663	69
***1944**	0 7701		1455 9	361 05	363 1	369	84
1945	1 131		182 2	328 53	364 2	81	99
1946	0 7 5		2186 6	94 24	363 5	1 550	1 14
1947	0 3136		55 8	59 95	36 9	1 56	1 29
1948	1 6746		2916 9	227 4	364 0	969	1 44
1949	0 657		3 81 3	193 13	363 3	674	1 58
1950	1 6269		3647 6	16 61	364 4	387	1 73
Per od			4332 6	398 88	365 3	1 763	1 77

Column 2 coiected by the equat ons f om the f llowi g tabl s v s supe o o junction as requir d fo I lip s and Oc ultations T fi d infei o conjun t on for Shadows nd T n its dd (o subt ct) one half th syn d c pe d e $0^d.8849$ t the numbers in ol m s 4 5 6 7 8

The co stant $-0^d.0333$ has b n appl d to each of th cntries in column

Th co stant $-0^d.030$ has been appl d to each of the e tiies in colu nn 7

The constant $-0^d.03$ has b en applied to each of the ent ies in column 8

For Ecl pses the argument γ is not wanted

SATELLITE I
Approximate Tables of Conjunction

I *continued*

Epochs of Conjunction

1 Year	2 Conjunction	3 Variation for 100^d	4 α	5 β	6 γ	7 δ	8 ϵ
	d		d		d	d	d
1950	1·6269	...	3647·6	160·61	364·4	·387	1·73
1951	1·2182	...	4012·5	126·31	363·7	·093	·11
***1952**	0·8096	...	44·8	92·02	363·1	1·562	·26
1953	1·1709	...	411·6	59·50	364·2	1·275	·41
1954	0·7623	...	776·4	25·21	363·5	·980	·56
1955	0·3535	...	1141·1	389·80	362·8	·686	·71
***1956**	1·7147	...	1507·3	357·27	364·0	·399	·86
1957	0·3058	...	1871·7	322·98	363·3	·105	1·01
1958	1·6668	...	2237·7	290·46	364·4	1·580	1·16
1959	1·2580	...	2602·1	256·17	363·7	1·286	1·31
***1960**	0·8492	...	2966·6	221·87	363·0	·992	1·45
1961	1·2104	...	3333·2	189·35	364·1	·705	1·60
1962	0·8017	...	3698·0	155·06	363·5	·411	1·75
1963	0·3931	...	4062·7	120·76	362·8	·116	·13
***1964**	1·7542	...	96·5	88·24	363·9	1·592	·28
1965	0·3453	...	460·8	53·95	363·2	1·298	·43
1966	1·7064	...	827·0	21·43	364·4	1·011	·58
1967	1·2977	...	1191·6	386·02	363·7	·717	·73
***1968**	0·8887	...	1555·9	351·72	363·0	·422	·88
1969	1·2499	...	1922·3	319·20	364·1	·135	1·03
1970	0·8413	...	2287·1	284·91	363·4	1·604	1·17
1971	0·4326	...	2651·9	250·62	362·8	1·310	1·32
***1972**	0·0239	...	3016·6	216·32	362·1	1·015	1·47
1973	0·3850	...	3383·1	183·80	363·2	·728	1·62
1974	1·7461	...	3749·2	151·28	364·3	·441	·00
1975	1·3372	...	4113·5	116·99	363·6	·147	·15
***1976**	0·9284	...	145·3	82·69	363·0	1·615	·30
1977	1·2897	...	512·1	50·17	364·1	1·328	·45
1978	0·8807	...	876·0	15·88	363·4	1·034	·60
1979	0·4719	...	1240·7	380·47	362·7	·740	·75
***1980**	0·0634	...	1605·7	346·18	362·1	·446	·90
1981	0·4247	...	1972·4	313·65	363·2	·159	1·04
1982	0·0161	...	2337·3	279·36	362·5	1·627	1·19
1983	1·3772	...	2703·6	246·84	363·6	1·340	1·34
***1984**	0·9682	...	3067·6	212·54	362·9	1·046	1·49
1985	1·3294	− ·0001	3433·2	180·02	364·0	·759	1·64
1986	0·9199	− ·0001	3796·9	145·73	363·4	·464	·02
1987	0·5109	...	4160·8	111·44	362·7	·170	·17
***1988**	0·1021	...	192·7	77·14	362·0	1·639	·32
1989	0·4633	...	559·3	44·62	363·1	1·352	·47
1990	0·0547	+ ·0001	924·4	10·33	362·5	1·057	·62
1991	1·4162	+ ·0001	1291·5	376·69	363·6	·770	·77
***1992**	1·0077	+ ·0001	1656·8	342·40	362·9	·476	·92
1993	1·3690	...	2023·7	309·87	364·0	·189	1·06
1994	0·9604	...	2388·4	275·58	363·3	1·658	1·21
1995	0·5516	− ·0001	2752·7	241·29	362·7	1·363	1·36
***1996**	0·1425	− ·0001	3116·5	207·00	362·0	1·069	1·51
1997	0·5032	− ·0001	3482·1	174·47	363·1	·782	1·66
1998	0·0943	− ·0001	3846·0	140·18	362·4	·488	·04
1999	1·4552	...	4212·0	107·66	363·5	·201	·19
***2000**	1·0465	...	243·9	73·36	362·9	1·669	·34
Period	...	...	4332·6	398·88	365·3	1·763	1·77

Column 2 corrected by the equations from the following tables, gives superior conjunction as required for Eclipses and Occultations. To find inferior conjunction for Shadows and Transits, add (or subtract) one half the synodic period, *i.e.* $0^d{\cdot}8849$, to the numbers in columns 2, 4, 5, 6, 7, 8.

The constant $-0^d{\cdot}0333$ has been applied to each of the entries in column 2.

The constant $-0^d{\cdot}030$ has been applied to each of the entries in column 7.

The constant $-0^d{\cdot}03$ has been applied to each of the entries in column 8.

For Eclipses the argument γ is not wanted.

SATELLITE I

Approximate Tables of Conjunction

II **Motions of the Arguments**

		3	4	5			3	4	5
Syn Rev	D te	α β γ	δ		Syn Rev	Date	α β γ	δ	
		l	d	d			d	d	d
1	January 1 7699	1 77	007	00	**53**	April 3 8026	93 80	378	04
2	3 5397	3 54	014	00	**54**	5 57 5	95 57	385	04
3	5 3096	5 31	021		**55**	7 34 3	97 34	39	04
4	7 794	7 8	29	00	**56**	9 11	99 11	399	04
5	8 8493	8 85	36	00	**57**	10 882	100 88	4 6	04
6	10 6192	1 62	043	00	**58**	12 6519	102 65	413	04
7	12 3890	1 39	050	01	**59**	14 4 18	104 4	421	04
8	14 1589	14 6	057	01	**60**	16 1916	106 19	4 8	4
9	15 9 87	15 93	64	01	**61**	17 9615	107 96	435	04
10	17 6986	17 7	71	01	**62**	19 7314	109 73	442	04
11	19 4685	19 47	078	1	**63**	21 5012	111 50	449	05
12	1 2383	21 24	086	01	**64**	3 711	113 7	456	05
13	3 008	23 01	93	01	**65**	25 0409	115 04	463	05
14	4 7780	4 78	100	01	**66**	6 8108	116 81	470	5
15	26 5479	6 55	107	1	**67**	28 5807	118 58	478	05
16	8 3178	8 3	114	01	**68**	3 3505	1 0 35	485	05
17	30 0876	30 09	121	01	**69**	May 1204	1 2 1	492	05
18	31 8575	3 86	128	01	**70**	3 8902	123 89	499	05
19	Гebruary 2 6273	33 63	135	01	**71**	5 6601	1 5 66	506	05
20	4 3972	35 40	143	01	**72**	7 4300	127 43	513	05
21	6 1671	37 17	150	02	**73**	9 1998	129 20	520	05
22	7 9369	38 94	157	02	**74**	10 9697	130 97	5 8	05
23	97 68	40 71	164	0	**75**	12 7395	132 74	535	05
24	11 4767	42 48	171	02	**76**	14 5094	134 51	542	05
25	13 465	44 25	178	2	**77**	16 2793	136 28	549	06
26	15 0164	46 0	185	2	**78**	18 0491	138 05	556	6
27	16 786	47 79	19	0	**79**	19 8190	139 82	563	06
28	18 5561	49 56	00	0	**80**	21 5888	141 59	570	06
29	0 3 60	51 33	7	0	**81**	3 3587	143 36	577	06
30	22 0958	53 10	214	02	**82**	25 1 86	145 13	585	06
31	23 8657	54 87	221	02	**83**	26 8984	146 90	592	06
32	25 6355	56 64	8	0	**84**	28 6683	148 67	599	06
33	7 4054	58 41	35	02	**85**	30 4381	150 44	606	06
34	Ma ch 1 1753	6 18	242	02	**86**	June 1 080	152 21	613	06
35	2 9451	61 95	250	03	**87**	2 9779	153 98	620	06
36	4 7150	63 7	57	03	**88**	4 7477	155 75	627	06
37	6 4848	65 48	64	03	**89**	6 5176	157 5	634	06
38	8 547	67 5	71	03	**90**	8 874	159 29	64	06
39	10 246	69 2	78	03	**91**	10 0573	161 06	649	07
40	11 7944	70 79	285	3	**92**	11 8 72	162 83	656	07
41	13 5643	72 56	29	03	**93**	13 5970	164 60	663	07
42	15 3341	74 33	99	03	**94**	15 3669	166 37	670	07
43	17 1040	76 10	307	03	**95**	17 1367	168 14	677	07
44	18 8739	77 87	314	03	**96**	18 9066	169 91	684	07
45	20 6437	79 64	321	3	**97**	0 6765	171 68	691	07
46	4136	81 41	328	03	**98**	22 4463	173 45	699	07
47	4 1834	83 18	335	03	**99**	4 162	175 22	706	07
48	5 9533	84 95	342	03	**100**	5 9860	176 99	713	07
49	7 7 3	86 7	349	04	**101**	27 7559	178 76	720	07
50	9 493	88 49	356	04	**102**	9 5258	180 53	727	07
51	31 6 9	90 26	364	04	**103**	July 1 956	182 30	734	07
52	April 2 03 7	92 03	371	04	**104**	3 0655	184 07	741	8

I L pY limi 1 h tl 1 t C l m ly ft F l 8 Th t i t b ld d t tl f T bl I

Approximate Tables of Conjunction

II *continued* **Motions of the Arguments**

1	2		3	4	5	1	2		3	4	5
Syn. Rev.	Date		α, β, γ	δ	ϵ	Syn. Rev.	Date		α, β, γ	δ	ϵ
		d	d	d	d			d	d	d	d
105	July	4·8354	185·84	·749	·08	**157**	October	4·8681	277·87	1·119	·11
106		6·6052	187·61	·756	·08	**158**		6·6380	279·64	1·126	·11
107		8·3751	189·38	·763	·08	**159**		8·4078	281·41	1·133	·11
108		10·1449	191·14	·770	·08	**160**		10·1777	283·18	1·141	·12
109		11·9148	192·91	·777	·08	**161**		11·9475	284·95	1·148	·12
110		13·6847	194·68	·784	·08	**162**		13·7174	286·72	1·155	·12
111		15·4545	196·45	·791	·08	**163**		15·4873	288·49	1·162	·12
112		17·2244	198·22	·798	·08	**164**		17·2571	290·26	1·169	·12
113		18·9942	199·99	·806	·08	**165**		19·0270	292·03	1·176	·12
114		20·7641	201·76	·813	·08	**166**		20·7968	293·80	1·183	·12
115		22·5340	203·53	·820	·08	**167**		22·5667	295·57	1·190	·12
116		24·3038	205·30	·827	·08	**168**		24·3366	297·34	1·198	·12
117		26·7037	207·70	·834	·08	**169**		26·1064	299·11	1·205	·12
118		27·8435	208·84	·841	·09	**170**		27·8763	300·88	1·212	·12
119		29·6134	210·61	·848	·09	**171**		29·6461	302·65	1·219	·12
120		31·3833	212·38	·855	·09	**172**		31·4160	304·42	1·226	·12
121	August	2·1531	214·15	·863	·09	**173**	November	2·1859	306·19	1·233	·12
122		3·9230	215·92	·870	·09	**174**		3·9557	307·96	1·240	·13
123		5·6928	217·69	·877	·09	**175**		5·7256	309·73	1·248	·13
124		7·4627	219·46	·884	·09	**176**		7·4954	311·50	1·255	·13
125		9·2326	221·23	·891	·09	**177**		9·2653	313·27	1·262	·13
126		11·0024	223·00	·898	·09	**178**		11·0352	315·04	1·269	·13
127		12·7723	224·77	·905	·09	**179**		12·8050	316·81	1·276	·13
128		14·5421	226·54	·912	·09	**180**		14·5749	318·57	1·283	·13
129		16·3120	228·31	·920	·09	**181**		16·3447	320·34	1·290	·13
130		18·0819	230·08	·927	·09	**182**		18·1146	322·11	1·297	·13
131		19·8517	231·85	·934	·10	**183**		19·8845	323·88	1·305	·13
132		21·6216	233·62	·941	·10	**184**		21·6543	325·65	1·312	·13
133		23·3914	235·39	·948	·10	**185**		23·4242	327·42	1·319	·13
134		25·1613	237·16	·955	·10	**186**		25·1941	329·19	1·326	·13
135		26·9312	238·93	·962	·10	**187**		26·9639	330·96	1·333	·14
136		28·7010	240·70	·970	·10	**188**		28·7338	332·73	1·340	·14
137		30·4709	242·47	·977	·10	**189**		30·5036	334·50	1·347	·14
138	September	1·2407	244·24	·984	·10	**190**	December	2·2735	336·27	1·354	·14
139		3·0106	246·01	·991	·10	**191**		4·0434	338·04	1·362	·14
140		4·7805	247·78	·998	·10	**192**		5·8132	339·81	1·369	·14
141		6·5503	249·55	1·005	·10	**193**		7·5831	341·58	1·376	·14
142		8·3202	251·32	1·012	·10	**194**		9·3529	343·35	1·383	·14
143		10·0901	253·09	1·019	·10	**195**		11·1228	345·12	1·390	·14
144		11·8599	254·86	1·027	·10	**196**		12·8927	346·89	1·397	·14
145		13·6298	256·63	1·034	·10	**197**		14·6625	348·66	1·404	·14
146		15·3996	258·40	1·041	·11	**198**		16·4324	350·43	1·411	·14
147		17·1695	260·17	1·048	·11	**199**		18·2022	352·20	1·419	·14
148		18·9394	261·94	1·055	·11	**200**		19·9721	353·97	1·426	·14
149		20·7092	263·71	1·062	·11	**201**		21·7420	355·74	1·433	·15
150		22·4791	265·48	1·069	·11	**202**		23·5118	357·51	1·440	·15
151		24·2489	267·25	1·076	·11	**203**		25·2817	359·28	1·447	·15
152		26·0188	269·02	1·084	·11	**204**		27·0515	361·05	1·454	·15
153		27·7887	270·79	1·091	·11	**205**		28·8214	362·82	1·461	·15
154		29·5585	272·56	1·098	·11	**206**		30·5913	364·59	1·469	·15
155	October	1·3284	274·33	1·105	·11	**207**		32·3611	366·36	1·476	·15
156		3·0982	276·10	1·112	·11						

In Leap Year, diminish the date in Column 2 by 1[d] after Feb. 28.

The entries to be added to those of Table I.

SATELLITE I

Approximate Tables of Conjunction

III **Equation of Conjunction** **Argument a** **Ec , Oc , Sh , Tr**

a	Γquati n	3 Δ o	a	Equation	3 Δ 10	a	I quat on	3 Δ o1	a	Γquation	3 Δ o	a	Equation	3 Δ od
			d			d	l			d		d	ι	
0	0 030	+4	**1000**	0 57	+0 3	**2000**	0 0361	3 5	**3000**	0 0 51	−1 5	**4000**	167	+3 5
20	308	4	**1020**	572	0 0	**2020**	354	3 5	**3020**	48	1 5	**4020**	174	3 8
40	317	4 2	**1040**	57	0 0	**2040**	347	3 8	**3040**	45	1 3	**4040**	18	3 8
60	3 5	4 0	**1060**	57	0	**2060**	339	3 8	**3060**	43	1 3	**4060**	189	3 8
80	333	4	**1080**	572	−0 3	**2080**	332	3 5	**3080**	40	1 3	**4080**	197	4 0
100	342	4	**1100**	57	0 3	**2100**	3 5	3 8	**3100**	38	1 0	**4100**	05	4 0
120	35	+4 0	**1120**	0 0571	−0 3	**2120**	0 0317	−3 8	**3120**	0 036	−1	**4120**	0 213	+4 0
140	358	4 0	**1140**	570	0 5	**2140**	310	3 8	**3140**	34	1 0	**4140**	1	4
160	366	4 0	**1160**	569	8	**2160**	30	3 8	**3160**	32	8	**4160**	9	4 0
180	374	4 0	**1180**	567	1 0	**2180**	95	3 5	**3180**	31	0 5	**4180**	37	4 0
200	38	4 0	**1200**	565	1 0	**2200**	88	3 8	**3200**	30	0 5	**4200**	45	4 0
220	0 039	+4	**1220**	0 0563	−1 0	**2220**	0 0280	−3 8	**3220**	0 0 9	−0 5	**4220**	0 0253	+4 0
240	398	4	**1240**	561	1 0	**2240**	273	3 8	**3240**	28	−0 3	**4240**	61	4 3
260	4 6	3 8	**1260**	559	1 0	**2260**	65	3 8	**3260**	8	0	**4260**	70	4 3
280	413	3 8	**1280**	557	1 3	**2280**	58	3 5	**3280**	8	0	**4280**	78	4
300	421	3 8	**1300**	554	1 5	**2300**	51	3 b	**3300**	28	0 0	**4300**	86	4 3
320	0 0428	+3 8	**1320**	0 0551	−1 5	**2320**	0 0243	3 8	**3320**	0 0028	0 0	**4320**	0 295	+4 3
340	436	3 8	**1340**	548	1 8	**2340**	36	3 5	**3340**	8	+0 3	**4340**	3 3	4 0
360	443	3 5	**1360**	544	1 8	**2360**	29	3 5	**3360**	9	0 5	**4360**	311	4 3
380	450	3 5	**1380**	541	1 8	**2380**	22	3 5	**3380**	30	0 5	**4380**	320	4 3
400	457	3 3	**1400**	537	0	**2400**	215	3 5	**3400**	31	0 5	**4400**	328	4
420	0 0463	+3 3	**1420**	0 0533	−2 0	**2420**	0 208	−3 5	**3420**	0 0032	+0 8	**4420**	0 0336	+4 3
440	470	3 3	**1440**	529		**2440**	201	3 5	**3440**	34	1 0	**4440**	345	4 3
460	476	3 0	**1460**	5 5	2	**2460**	194	3 5	**3460**	36	1	**4460**	353	4 0
480	48	3 0	**1480**	5 1	2 3	**2480**	187	3 5	**3480**	38	1	**4480**	361	4 0
500	488	3 0	**1500**	516	5	**2500**	180	3 3	**3500**	40	1 3	**4500**	369	4 0
520	0 0494	+3 0	**1520**	0 511	− 5	**2520**	0174	3 3	**3520**	0 0043	+1 5	**4520**	0 0377	+4 0
540	5	3 0	**1540**	506	5	**2540**	167	3 5	**3540**	46	1 5	**4540**	385	4
560	506	8	**1560**	501	5	**2560**	16	3 3	**3560**	49	1 5	**4560**	393	4 0
580	511	5	**1580**	496	5	**2580**	154	3 0	**3580**	52	1 5	**4580**	401	4 0
600	516	5	**1600**	491	2 8	**2600**	148	3 0	**3600**	55	1 8	**4600**	409	3 8
620	0 05 1	+ 5	**1620**	0485	− 8	**2620**	0 0142	−3 0	**3620**	0 0059	+ 0	**4620**	0 0416	+3 8
640	5 6	3	**1640**	480	2 8	**2640**	136	3 0	**3640**	63	2 0	**4640**	4 4	3 8
660	530		**1660**	474	3 0	**2660**	130	3 0	**3660**	67	2 3	**4660**	431	3 5
680	534	0	**1680**	468	3 0	**2680**	124	3 0	**3680**	72	3	**4680**	438	3 5
700	538	0	**1700**	46	3	**2700**	118	8	**3700**	76	2 3	**4700**	445	3 5
720	0 0542	+2 0	**1720**	0 0456	−3 0	**2720**	0 0113	− 8	**3720**	0 0081	+2 5	**4720**	045	+3 5
740	546	1 8	**1740**	450	3 0	**2740**	1 7	8	**3740**	86	2 5	**4740**	459	3 5
760	549	1 5	**1760**	444	3 3	**2760**	1 2	2 5	**3760**	91	2 5	**4760**	466	3 3
780	55	1 5	**1780**	437	3 3	**2780**	97	5	**3780**	96	8	**4780**	47	3 3
800	555	1 5	**1800**	431	3 3	**2800**	9	5	**3800**	1	3	**4800**	479	3 3
820	558	+1 5	**1820**	0 04 4	−3 5	**2820**	0 87	−2 5	**3820**	0108	+3	**4820**	0 0485	+3 0
840	561	1 3	**1840**	417	3 5	**2840**	82	3	**3840**	114	3 0	**4840**	491	3 0
860	563	1	**1860**	410	3 3	**2860**	78	3	**3860**	1 0	3 0	**4860**	497	2 8
880	565	1	**1880**	404	3 3	**2880**	73	2 3	**3880**	1 6	3 3	**4880**	50	2 8
900	567	0 8	**1900**	397	3 5	**2900**	69	0	**3900**	133	3 3	**4900**	5 8	2 8
920	0 568	+0 5	**1920**	0 0390	−3 5	**2920**	0 065	−2 0	**3920**	0 0139	+3 3	**4920**	0 0513	+2 5
940	569	0 5	**1940**	383	3 5	**2940**	61	1 8	**3940**	146	3 5	**4940**	518	2 5
960	570	0 5	**1960**	376	3 8	**2960**	58	1 8	**3960**	153	3 5	**4960**	523	3
980	571	0 5	**1980**	368	3 8	**2980**	54	1 8	**3980**	160	3 5	**4980**	527	2 3
1000	0 057	+0 3	**2000**	0 0361	−3 5	**3000**	0 0051	−1 5	**4000**	0 0167	+3 5	**5000**	0 0532	+ 3

Appl d C t t + 3

Th Fq ti f thl T bl t b ppl d t th t l f C l 8 f T bl I

SATELLITE I

Approximate Tables of Conjunction

IV Equation for Geocentric Conjunction Argument β Oc., Tr.

1	2	3	1	2	3	1	2	3	1	2	3
β	Equation	Δ 1^d	β	Equation	Δ 1^d	β	Equation	Δ 1^d	β	Equation	Δ 1^d
d	d		d	d		d	d		d	d	
0	−0·0100	− 11	100	−0·0635	+ 2	200	−0·0096	+ 7	300	+0·0436	+ 1
2	121	10	102	632	2	202	82	7	302	439	1
4	142	11	104	628	2	204	67	7	304	441	1
6	163	10	106	623	2	206	53	7	306	443	+ 1
8	184	11	108	619	2	208	39	7	308	444	0
10	205	10	110	614	3	210	25	7	310	444	0
12	−0·0225	− 10	112	−0·0608	+ 3	212	−0·0010	+ 7	312	+0·0444	0
14	246	10	114	602	3	214	+ 4	7	314	444	0
16	266	10	116	596	3	216	18	7	316	443	− 1
18	286	10	118	589	4	218	32	7	318	441	1
20	305	10	120	582	4	220	46	7	320	439	1
22	−0·0324	9	122	−0·0574	+ 4	222	+0·0060	+ 7	322	+0·0436	− 2
24	343	9	124	566	4	224	74	7	324	433	2
26	361	9	126	558	4	226	87	7	326	429	2
28	379	9	128	549	4	228	101	7	328	425	2
30	397	9	130	540	5	230	114	7	330	420	3
32	−0·0413	− 8	132	−0·0531	+ 5	232	+0·0128	+ 7	332	+0·0414	− 3
34	430	8	134	521	5	234	141	7	334	407	4
36	446	8	136	511	5	236	154	6	336	400	3
38	461	8	138	501	5	238	167	7	338	393	4
40	476	7	140	491	5	240	180	6	340	385	4
42	−0·0490	− 7	142	−0·0480	+ 5	242	+0·0193	+ 6	342	+0·0376	− 5
44	503	7	144	469	6	244	205	6	344	366	5
46	516	6	146	458	6	246	217	6	346	356	5
48	529	6	148	446	6	248	229	6	348	345	6
50	540	6	150	435	6	250	241	6	350	334	6
52	−0·0551	− 5	152	−0·0423	+ 6	252	+0·0253	+ 6	352	+0·0322	− 6
54	562	5	154	411	6	254	264	6	354	309	7
56	572	5	156	398	6	256	275	5	356	296	7
58	581	4	158	386	6	258	286	6	358	282	7
60	589	4	160	373	6	260	297	5	360	267	8
62	−0·0597	− 4	162	−0·0360	+ 7	262	+0·0307	+ 5	362	+0·0252	− 7
64	604	4	164	347	6	264	317	5	364	237	8
66	611	3	166	334	7	266	327	5	366	221	8
68	617	3	168	321	7	268	336	5	368	204	9
70	622	3	170	307	7	270	345	4	370	187	9
72	−0·0627	− 2	172	−0·0293	+ 7	272	+0·0354	+ 5	372	+0·0169	− 9
74	631	2	174	280	7	274	363	4	374	151	9
76	635	2	176	266	7	276	371	4	376	133	9
78	638	1	178	252	7	278	378	4	378	114	10
80	640	1	180	238	7	280	386	4	380	94	10
82	−0·0642	− 1	182	−0·0224	+ 7	282	+0·0393	+ 4	382	+0·0075	− 10
84	643	− 1	184	210	7	284	399	3	384	55	10
86	644	0	186	196	7	286	405	3	386	35	10
88	645	0	188	182	7	288	411	3	388	+ 14	10
90	644	0	190	168	7	290	416	3	390	− 7	10
92	−0·0643	+ 1	192	−0·0153	+ 7	292	+0·0421	+ 2	392	−0·0027	− 10
94	642	1	194	139	7	294	426	2	394	48	11
96	640	1	196	125	7	296	430	2	396	69	10
98	638	1	198	110	7	298	433	2	398	91	11
100	−0·0635	+ 2	200	−0·0096	+ 7	300	+0·0436	+ 1	400	−0·0111	− 10

Applied Constant : $-0^{d\cdot}$ 0100. The Equation of Table IV, corrected by those of Tables V, VI, gives the Annual Parallax, p, which must be applied for Occultations and Transits to the entries in Columns 2, 7, 8. of Table I, and also serves as argument of Table LI for computing the effect of Jupiter's phase.

SATELLITE I

Approximate Tables of Conjunction

V Equation for Geocentric Conjunction Arguments α, β Oc, Tr

α \ β	0^d	20^d	40^d	60^d	80^d	100^d	120^d	140^d	160^d	180^d	200^d	220^d	240^d	260^d	280^d	300^d	320^d	340^d	360^d	380^d	400^d
0	70	58	48	42	41	43	48	54	6	65	70	75	80	87	9	97	99	97	91	81	69
100	79	66	55	47	4	4	45	49	54	59	64	69	75	8	89	96	10	10	98	89	78
200	88	75	6	51	44	4	42	45	49	54	58	63	69	76	85	93	101	104	103	97	87
300	96	83	69	57	47	41	40	41	44	48	5	57	63	71	80	91	1	1 7	109	1 5	95
400	1 4	92	77	6	5	4	38	38	40	43	47	51	57	66	76	88	99	108	113	11	1 3
500	111	99	84	68	53	43	37	35	36	39	4	46	5	60	71	84	98	1 9	116	117	111
600	117	106	91	73	57	45	37	34	33	35	38	41	47	55	66	81	96	1 9	119	12	117
700	123	1 3	97	79	61	47	38	33	31	3	34	37	4	5	6	77	93	109	1 0	1 5	12
800	1 7	118	1 3	84	66	50	39	33	3	3	31	34	38	46	57	73	9	1 7	1 1	128	127
900	130	122	1 8	89	70	53	41	33	9	9	9	31	35	4	53	68	86	105	1 0	1 9	130
1000	13	1 6	11	94	74	57	43	34	3	28	8	9	33	39	49	64	8	102	118	1 9	131
1100	13	1 8	116	98	79	61	46	37	31	8	8	28	31	36	46	6	78	98	116	1 8	132
1200	13	1 9	118	1 2	83	65	5	39	33	3	28	8	30	34	43	56	74	94	11	1 5	131
1300	129	1 8	119	105	87	69	54	43	36	32	30	9	3	33	41	53	70	89	107	1	129
1400	125	1 7	1 0	107	90	73	58	47	39	35	3	30	30	33	39	5	65	83	10	117	126
1500	1 1	1 4	119	108	93	77	63	51	43	38	35	33	32	33	38	47	61	78	96	111	1 1
1600	115	120	118	1 9	96	81	67	56	48	43	39	36	34	34	37	45	57	7	89	105	116
1700	109	115	115	9	98	85	7	61	5	48	43	40	37	36	38	43	53	67	8	98	109
1800	101	1 9	111	1 8	99	88	77	67	59	53	48	45	41	39	39	4	49	61	75	90	102
1900	93	103	107	1 6	100	91	81	7	66	59	54	5	46	4	4	41	46	55	68	81	94
2000	85	95	102	1 3	1 0	94	86	78	70	65	60	55	5	46	4	41	44	5	6	73	85
2100	76	87	96		1 0	96	90	83	76	71	66	61	56	5	45	4	4	46	53	64	77
2200	67	79	89	96	99	97	93	88	8	77	7	67	61	55	49	43	40	41	47	56	68
2300	58	7	8	9	97	98	96	92	87	83	78	73	67	60	53	45	4	38	40	48	59
2400	49	62	75	87	95	99	99	96	93	88	84	79	73	65	57	47	39	35	35	40	50
2500	41	54	68	8	9	99	101	100	97	94	90	85	79	71	61	50	40	33	3	33	4
2600	34	46	61	76	89	98	1	103	101	98	95	90	84	76	66	53	41	31	26	7	34
2700	7	38	54	71	85	96	1 3	105	105	10	99	96	90	81	70	57	43	31	3	1	7
2800	21	3	47	65	81	94	103	1 7	1 7	106	104	100	95	87	75	61	45	31	1	17	1
2900	16	5	41	59	77	92	10	1 7	1 9	1 9	107	104	99	91	8	65	48	3	0	14	16
3000	1		35	54	73	89	1 1	107	11	111	110	107	103	95	84	69	51	34	0	12	1
3100	9	16	31	49	69	86	99	107	111	1	111	110	106	99	88	73	55	36	1	11	10
3200	8	14	27	45	64	8	96	1 5	11	11	11	111	108	10	9	77	59	40	3	11	8
3300	8	1	3	41	60	78	93	103	1 9	111	11	1	110	105	95	81	63	44	6	13	8
3400	9	1	21	37	56	74	89	10	1 6	110	111	11	110	1 6	98	85	67	48	30	16	9
3500	1	1	0	35	5	70	85	96	103	1 7	11	111	11	107	1 0	88	7	53	34	20	1
3600	16	14	0	33	49	66	80	9	10	104	107	109	109	107	10	91	76	58	40	25	16
3700	1	17	1	3	46	6	76	87	95	10	104	106	107	1 6	10	94	81	64	46	31	0
3800	27	21	3	31	44	58	71	82	9	96	1 0	103	105	105	1 3	96	85	70	53	38	6
3900	34	7	6	3	4	54	66	77	85	91	95	98	101	1 3	1	97	88	75	6	45	33
4000	41	33	30	33	4	51	6	71	79	85	9	94	97	10	1 1	98	9	81	67	53	41
4100	49	40	35	35	40	48	57	66	74	79	84	88	93	97	99	99	95	86	75	61	49
4200	58	47	40	38	40	45	53	61	68	73	78	83	88	93	97	98	97	91	82	70	58
4300	67	55	46	4	40	44	49	55	62	67	7	77	82	88	94	98	99	96	89	79	66
4400	76	64	53	45	4	4	46	51	56	61	66	71	77	83	90	96	100	100	96	87	75
4500	85	72	6	50	44	41	43	46	51	55	60	65	71	78	86	94	101	1 3	10	95	84

Th it tli T bl q l   Appli d C t t +   Th ti p it

Th Eq t f tli T bl t b dd dt th t f T bl IV

SATELLITE I

Approximate Tables of Conjunction

VI Equation for Geocentric Conjunction Arguments β, γ Oc., Tr.

γ \ β	0^d	20^d	40^d	60^d	80^d	100^d	120^d	140^d	160^d	180^d	200^d	220^d	240^d	260^d	280^d	300^d	320^d	340^d	360^d	380^d	400^d
d																					
0	30	34	37	39	40	39	38	36	34	32	30	28	26	24	22	21	20	21	23	26	30
20	23	27	31	36	39	40	40	39	38	37	35	33	31	29	25	22	19	18	18	19	23
40	16	20	25	31	36	39	41	42	42	41	40	38	36	33	29	25	20	16	14	14	16
60	11	14	20	26	33	38	41	43	44	44	43	42	40	37	33	28	22	16	12	10	11
80	8	11	16	22	29	35	40	43	45	45	45	44	43	41	37	31	25	18	12	9	10
100	8	9	13	19	26	32	37	41	43	45	45	45	44	43	39	35	28	21	15	10	8
120	11	10	12	17	23	29	34	38	41	42	43	44	44	43	41	37	32	25	19	14	10
140	15	13	14	17	21	25	30	34	37	39	40	41	42	42	41	39	35	30	24	19	15
160	22	18	17	18	20	23	26	29	32	34	36	37	39	40	40	40	38	35	30	26	21
180	29	25	22	20	20	21	23	25	27	29	31	33	34	36	38	40	40	39	36	33	29
200	36	32	28	24	21	20	20	21	22	24	26	27	29	32	35	38	41	42	42	40	36
220	43	39	34	28	24	21	19	18	19	20	21	23	25	27	31	36	40	44	46	45	43
240	48	45	39	33	27	22	19	17	16	17	17	18	20	23	27	33	38	44	48	49	48
260	52	49	44	37	30	24	20	17	15	15	15	16	17	20	24	29	36	42	48	51	51
280	52	51	47	41	34	27	22	19	16	15	15	15	16	18	21	26	32	39	46	50	52
300	50	50	48	43	37	31	26	22	19	17	16	16	16	17	19	23	29	35	42	47	50
320	46	47	47	44	39	34	29	26	23	21	19	18	18	18	19	21	25	31	36	42	46
340	39	42	44	43	40	37	33	30	27	25	24	22	21	20	19	20	22	26	30	35	39
360	32	36	39	40	40	39	37	35	32	30	29	27	25	23	22	21	20	22	24	28	32
380	24	29	33	37	39	39	40	38	37	35	34	32	30	27	25	22	19	18	19	21	25
400	18	22	27	32	37	40	41	41	41	40	39	37	35	32	28	24	20	17	15	15	18

The unit in this Table equals $0^d.0001$. Applied Constant: +30. The entries are positive.
The Equation of this Table to be added to that of Table IV.

VII Equations of Conjunction VIII

E., O., S., T.

VII

1	2
δ	Equation
d	d
0·00	0·0030
0·10	0·0022
0·20	15
0·30	10
0·40	7
0·50	8
0·60	0·0011
0·70	16
0·80	23
0·90	31
1·00	39
1·10	0·0046
1·20	51
1·30	53
1·40	52
1·50	48
1·60	0·0043
1·70	35
1·80	27
1·90	20
2·00	0·0013

Applied Constant: $+0^d.0030$.

VIII

1	2	1	2
ϵ	Equation	ϵ	Equation
d	d	d	d
0·00	0·0003	1·00	0·0004
0·05	0·0004	1·05	0·0005
0·10	5	1·10	5
0·15	5	1·15	5
0·20	5	1·20	5
0·25	5	1·25	4
0·30	0·0005	1·30	0·0004
0·35	4	1·35	3
0·40	4	1·40	2
0·45	3	1·45	2
0·50	2	1·50	1
0·55	0·0002	1·55	0·0001
0·60	1	1·60	1
0·65	1	1·65	1
0·70	1	1·70	2
0·75	1	1·75	3
0·80	0·0002	1·80	0·0003
0·85	2	1·85	4
0·90	3	1·90	5
0·95	4	1·95	5
1·00	0·0004	2·00	0·0005

Applied Constant: $+0^d.0003$.

The Equations of Tables VII, VIII to be applied to the entries of Table I, Column 2.

SATELLITE I

Tables

of the

Longitude on Jupiter's Orbit, Variation of the Radius Vector, and the Latitude

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

IX Values at Epoch of Mean Longitude and the Arguments

1	2	3	4	5	6	7	8	9	10
Date	Mean Long.	A	B	C	D	E	F	G	H
	°	d	d	d	d	d	d	d	d
1850·0	306·02002	0·32284	2·085	0·222	0·457	0·285	223·78	451·85	205·04
1851·0	59·50226	2·20010	0·437	0·496	1·002	0·840	187·62	359·18	87·74
***1852·0**	172·98450	0·55188	1·139	0·771	1·547	1·394	151·46	266·50	452·74
1853·0	129·95573	3·42914	0·491	0·275	1·323	1·179	116·31	174·83	336·44
1854·0	243·43797	1·78093	1·193	0·550	0·099	1·733	80·15	82·15	219·14
1855·0	356·92021	0·13272	1·895	0·824	0·645	0·518	43·99	447·15	101·83
***1856·0**	110·40245	2·00997	0·247	1·099	1·190	1·073	7·84	354·48	466·83
1857·0	67·37368	1·36176	1·949	0·603	0·966	0·858	373·84	262·80	350·53
1858·0	180·85592	3·23901	0·301	0·878	1·511	1·412	337·68	170·13	233·23
1859·0	294·33815	1·59080	1·003	1·152	0·287	0·197	301·52	77·45	115·93
***1860·0**	47·82039	3·46805	1·705	1·427	0·832	0·752	265·37	442·45	480·93
1861·0	4·79162	2·81984	1·057	0·931	0·608	0·537	230·21	350·78	364·63
1862·0	118·27386	1·17163	1·759	1·205	1·154	1·091	194·05	258·10	247·33
1863·0	231·75610	3·04889	0·111	1·480	1·699	1·645	157·89	165·43	130·02
***1864·0**	345·23834	1·40067	0·813	1·755	0·475	0·430	121·74	72·75	12·72
1865·0	302·20957	0·75246	0·165	1·259	0·251	0·215	86·58	438·75	378·72
1866·0	55·69181	2·62972	0·867	1·533	0·796	0·770	50·42	346·08	261·42
1867·0	169·17405	0·98151	1·569	0·037	1·341	1·324	14·27	253·40	144·12
***1868·0**	282·65629	2·85876	2·271	0·312	0·117	0·109	379·27	160·73	26·82
1869·0	239·62752	2·21055	1·623	1·587	1·663	1·663	344·11	69·06	392·82
1870·0	353·10976	0·56234	2·325	0·091	0·439	0·449	307·95	434·06	275·51
1871·0	106·59200	2·43959	0·677	0·365	0·984	1·003	271·80	341·38	158·21
***1872·0**	220·07424	0·79138	1·379	0·640	1·529	1·557	235·64	248·71	40·91
1873·0	177·04547	0·14317	0·730	0·144	1·305	1·342	200·48	157·03	406·91
1874·0	290·52771	2·02042	1·433	0·419	0·081	0·127	164·33	64·36	289·61
1875·0	44·00994	0·37221	2·135	0·693	0·626	0·682	128·17	429·36	172·31
***1876·0**	157·49218	2·24946	0·486	0·968	1·172	1·236	92·01	336·68	55·00
1877·0	114·46341	1·60125	2·188	0·472	0·948	1·021	56·85	245·01	421·00
1878·0	227·94565	3·47851	0·540	0·747	1·493	1·575	20·70	152·33	303·70
1879·0	341·42789	1·83029	1·242	1·021	0·269	0·360	385·70	59·66	186·40
***1880·0**	94·91013	0·18208	1·944	1·296	0·814	0·915	349·54	424·66	69·10
1881·0	51·88136	3·05934	1·296	0·800	0·590	0·700	314·38	332·98	435·10
1882·0	165·36360	1·41113	1·998	1·075	1·135	1·254	278·23	240·31	317·80
1883·0	278·84584	3·28838	0·350	1·349	1·681	0·039	242·07	147·63	200·49
***1884·0**	32·32808	1·64017	1·052	1·624	0·457	0·594	205·91	54·96	83·19
1885·0	349·29931	0·99196	0·404	1·128	0·233	0·379	170·76	420·96	449·19
1886·0	102·78155	2·86921	1·106	1·403	0·778	0·933	134·60	328·28	331·89
1887·0	216·26379	1·22100	1·808	1·677	1·323	1·487	98·44	235·61	214·59
***1888·0**	329·74603	3·09825	0·160	0·181	0·099	0·272	62·29	142·93	97·29
1889·0	286·71726	2·45004	1·862	1·456	1·644	0·058	27·13	51·26	463·29
1890·0	40·19950	0·80183	0·214	1·730	0·421	0·612	392·13	416·26	345·99
1891·0	153·68173	2·67908	0·916	0·235	0·966	1·166	355·97	323·58	228·68
***1892·0**	267·16397	1·03087	1·618	0·509	1·511	1·720	319·82	230·91	111·38
1893·0	224·13520	0·38266	0·970	0·013	1·287	1·505	284·66	139·23	477·38
1894·0	337·61744	2·25992	1·672	0·288	0·063	0·291	248·50	46·56	360·08
1895·0	91·09968	0·61170	0·024	0·562	0·608	0·845	212·34	411·56	242·78
***1896·0**	204·58192	2·48896	0·726	0·837	1·153	1·399	176·19	318·88	125·48
1897·0	161·55315	1·84075	0·078	0·341	0·930	1·184	141·03	227·21	9·17
1898·0	275·03539	0·19254	0·780	0·616	1·475	1·739	104·87	134·53	374·17
1899·0	28·51763	2·06979	1·482	0·890	0·251	0·524	68·72	41·86	256·87
1900·0	141·99987	0·42158	2·184	1·165	0·796	1·078	32·56	406·86	139·57
Periods	...	3·52546	2·350	1·771	1·769	1·769	401·16	457·67	482·30

Constant subtracted from Column 2 : 0°·60000.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

IX Values at Epoch of Mean Longitude and the Arguments

		3	4	5	6	7	8	9
I	J	K	L	M	N	O	P	Q
					d	d		
253 48	**1850 0**	1 7 601	1 698	0 68	1 11	1 3	0 8 8	3
13 89	**1851 0**	0 51449	0 728	1 99	1 68	1	0 6 1	0 0
12 30	**1852 0**	1 7211	1 5 5	146	49	0 7	0 415	0 61
378 3	**1853 0**	0 86059	1 555	1 76	9	0 5	3 4	43
257 71	**1854 0**	1 418 1	0 584	0 610	0 86	1 0	0 117	0 13
137 1	**1855 0**	0 0669	1 382	1 26	1 43	1 6	795	0 7
16 53	**1856 0**	0 76431	0 41	0 073	0 3	0 4	0 588	0 42
38 53	**1857 0**	0 55 79	441	1 690	0 03	0	0 497	0 24
61 95	**1858 0**	1 11041	1 39	0 537	0 60	7	0 291	0 8
141 35	**1859 0**	1 66803	0 268	1 153	1 17	1 3	0 084	0 53
20 76	***1860 0**	45651	1 066	0 001	1 74	0 1	0 762	0 23
386 76	**1861 0**	0 4499	1 95	1 617	1 54	1 7	0 671	05
66 17	**1862 0**	0 80260	0 1 5	464	0 34	0 5	0 464	63
145 58	**1863 0**	1 3602	9 3	1 08	91	1 0	0 57	0 34
4 99	**1864 0**	0 1487	1 720	1 697	1 48	1 6	0 051	0 04
390 99	**1865 0**	1 7063	1 750	1 544	1 28	1 4	0 844	0 74
7 40	**1866 0**	0 49480	0 779	0 391	0 08	0 2	0 637	0 44
149 81	**1867 0**	1 05242	1 577	1 8	65	0 7	0 431	14
29	***1868 0**	1 61004	6 7	1 6 4	1 2	1 3	0 24	73
395	**1869 0**	1 3985	0 636	1 471	1	1 1	0 133	0 55
74 63	**1870 0**	187	1 434	0 319	1 59	1 6	0 811	0 5
154 04	**1871 0**	0 7446	0 463	935	0 40	0 4	0 604	0 84
33 45	***1872 0**	1 30 23	1 61	1 551	0 97	1 0	0 397	54
399 45	**1873 0**	1 9 71	1 90	1 399	0 77	0 8	0 307	0 36
278 86	**1874 0**	1 64833	0 3 0	0 46	1 34	1 3	0 100	0 06
158 27	**1875 0**	0 43681	1 118	86	0 14	0 1	0 778	0 65
37 68	**1876 0**	0 99443	147	1 478	0 71	7	571	0 35
403 68	**1877 0**	0 78 91	177	1 326	0 51	0 5	480	0 17
83 09	**1878 0**	1 34053	974	0 173	1 08	1	0 73	0 75
16 51	**1879 0**	0 1 9 1	0 004	0 789	1 65	1 6	0 067	0 46
41 92	***1880 0**	0 68663	0 8 1	1 406	0 45	0 4	0 744	16
407 9	**1881 0**	0 47511	831	1 53	0 5	0	0 653	86
287 33	**1882 0**	1 03 73	1 629	1 0	82	0 8	447	0 56
166 74	**1883 0**	1 59 34	0 658	717	1 39	1 3	0 40	0 27
46 15	***1884 0**	0 37883	1 456	1 333	0 19	0 1	0 033	0 85
41 15	**1885 0**	0 16731	1 485	1 180	1 76	1 7	0 8 7	0 67
291 56	**1886 0**	7 49	0 515	0 028	0 56	0 5	6 0	0 37
170 97	**1887 0**	1 28 54	1 31	644	1 13	1 0	0 413	0 8
5 38	***1888 0**	0 7102	34	1 6	1 7	1 6	7	0 66
4 6 38	**1889 0**	6 864	0 37	1 1 8	1 50	1 4	116	0 48
95 /9	**1890 0**	0 4171	1 169	1 724	0 31	0 2	0 794	0 18
175	**1891 0**	97474	0 199	0 571	0 88	0 7	0 587	0 77
54 61	***1892 0**	1 53 36	996	1 187	1 45	1 3	0 380	0 47
4 61	**1893 0**	1 3 084	1 0 6	1 035	1 5	1 1	0 89	0 29
3 0	**1894 0**	1 932	0 056	1 651	05	1 6	0 083	0 0
79 43	**1895 0**	66694	0 853	0 499	0 6	0 4	0 76	0 58
58 84	**1896 0**	1 455	1 651	1 115	1 19	1 0	0 554	0 8
424 84	**1897 0**	1 013 3	1 68	0 96	0 99	0 8	0 463	0 10
304 5	**1898 0**	1 57065	0 710	1 578	1 56	1 3	0 256	0 69
183 66	**1899 0**	0 35913	1 507	0 426	0 36	0 1	0 049	0 39
63 7	**1900 0**	0 91675	0 537	1 04	93	0 7	0 727	0 09
485 59	P iods	1 76914	1 768	1 769	1 77	1 8	0 884	0 88

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SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

IX *continued* Values at Epoch of Mean Longitude and the Arguments

1	2	3	4	5	6	7	8	9	10
Date	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
	°	d	d	d	d	d	d	d	d
1900·0	141·99987	0·42158	2·184	1·165	0·796	1·078	32·56	406·86	139·57
1901·0	255·48211	2·29883	0·536	1·440	1·341	1·632	397·56	314·19	22·27
1902·0	8·96435	0·65062	1·238	1·714	0·117	0·417	361·40	221·51	387·27
1903·0	122·44659	2·52787	1·940	0·218	0·662	0·972	325·25	128·84	269·97
***1904·0**	235·92882	0·87966	0·292	0·493	1·208	1·526	289·09	36·16	152·66
1905·0	192·90006	0·23145	1·994	1·768	0·984	1·311	253·93	402·16	36·36
1906·0	306·38229	2·10870	0·346	0·272	1·529	0·096	217·78	309·49	401·36
1907·0	59·86453	0·46049	1·048	0·546	0·305	0·651	181·62	216·81	284·06
***1908·0**	173·34677	2·33775	1·750	0·821	0·850	1·205	145·46	124·14	166·76
1909·0	130·31800	1·68954	1·102	0·325	0·626	0·990	110·31	32·46	50·46
1910·0	243·80024	0·04132	1·804	0·600	1·172	1·544	74·15	397·46	415·46
1911·0	357·28248	1·91858	0·156	0·874	1·717	0·329	37·99	304·79	298·15
***1912·0**	110·76472	0·27037	0·858	1·149	0·493	0·884	1·84	212·11	180·85
1913·0	67·73595	3·14762	0·209	0·653	0·269	0·669	367·84	120·44	64·55
1914·0	181·21819	1·49941	0·912	0·928	0·814	1·223	331·68	27·76	429·55
1915·0	294·70043	3·37666	1·614	1·202	1·359	0·008	295·52	392·76	312·25
***1916·0**	48·18267	1·72845	2·316	1·477	0·135	0·562	259·37	300·09	194·95
1917·0	5·15390	1·08024	1·668	0·981	1·681	0·348	224·21	208·41	78·65
1918·0	118·63614	2·95749	0·019	1·255	0·457	0·902	188·05	115·74	443·65
1919·0	232·11838	1·30928	0·721	1·530	1·002	1·456	151·90	23·06	326·34
***1920·0**	345·60061	3·18654	1·424	0·034	1·547	0·241	115·74	388·06	209·04
1921·0	302·57185	2·53832	0·775	1·309	1·323	0·026	80·58	296·39	92·74
1922·0	56·05408	0·89011	1·477	1·583	0·099	0·581	44·42	203·71	457·74
1923·0	169·53632	2·76737	2·180	0·087	0·644	1·135	8·27	111·04	340·44
***1924·0**	283·01856	1·11916	0·531	0·362	1·190	1·689	373·27	18·36	223·14
1925·0	239·98979	0·47095	2·233	1·637	0·966	1·474	338·11	384·36	106·83
1926·0	353·47203	2·34820	0·585	0·141	1·511	0·259	301·95	291·69	471·83
1927·0	106·95427	0·69999	1·287	0·415	0·287	0·814	265·79	199·01	354·53
***1928·0**	220·43651	2·57724	1·989	0·690	0·832	1·368	229·64	106·34	237·23
1929·0	177·40774	1·92903	1·341	0·194	0·608	1·153	194·48	14·66	120·93
1930·0	290·88998	0·28082	2·043	0·469	1·153	1·707	158·32	379·66	3·63
1931·0	44·37222	2·15807	0·395	0·743	1·699	0·493	122·17	286·99	368·63
***1932·0**	157·85446	0·50986	1·097	1·018	0·475	1·047	86·01	194·32	251·32
1933·0	114·82569	3·38711	0·449	0·522	0·251	0·832	50·85	102·64	135·02
1934·0	228·30793	1·73890	1·151	0·797	0·796	1·386	14·70	9·97	17·72
1935·0	341·79017	0·09069	1·853	1·071	1·341	0·171	379·70	374·97	382·72
***1936·0**	95·27240	1·96795	0·205	1·346	0·117	0·726	343·54	282·29	265·42
1937·0	52·24364	1·31973	1·907	0·850	1·662	0·511	308·38	190·62	149·12
1938·0	165·72587	3·19699	0·259	1·125	0·438	1·065	272·23	97·94	31·81
1939·0	279·20811	1·54878	0·961	1·399	0·984	1·619	236·07	5·27	396·81
***1940·0**	32·69035	3·42603	1·663	1·674	1·529	0·405	199·91	370·27	279·51
1941·0	349·66158	2·77782	1·015	1·178	1·305	0·190	164·75	278·59	163·21
1942·0	103·14382	1·12961	1·717	1·453	0·081	0·744	128·60	185·92	45·91
1943·0	216·62606	3·00686	0·069	1·727	0·626	1·298	92·44	93·24	410·91
***1944·0**	330·10830	1·35865	0·771	0·231	1·171	0·083	56·28	0·57	293·61
1945·0	287·07953	0·71044	0·123	1·506	0·947	1·638	21·13	366·57	177·31
1946·0	40·56177	2·58769	0·825	0·010	1·493	0·423	386·13	273·89	60·00
1947·0	154·04401	0·93948	1·527	0·285	0·269	0·977	349·97	181·22	425·00
***1948·0**	267·52625	2·81673	2·229	0·559	0·814	1·531	313·81	88·54	307·70
1949·0	224·49748	2·16852	1·581	0·063	0·590	1·316	278·66	454·54	191·40
1950·0	337·97972	0·52031	2·283	0·338	1·135	0·102	242·50	361·87	74·10
Periods	...	3·52546	2·350	1·771	1·769	1·769	401·16	457·67	482·30

Constant subtracted from Column 2 : 0°·60000.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

IX *continued* **Values at Epoch of Mean Longitude and the Arguments**

		3	4	5	6	7	8	9
I	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**
				d		l	l	l
63 7	**1900 0**	0 91675	537	1 04	0 93	0 7	7 7	0 09
428 07	**1901 0**	1 47437	1 335	1 658	1 50	1 3	5	0 68
3 7 48	**1902 0**	6 85	364	0 5 6	0 30	1	0 314	0 38
186 89	**1903 0**	0 8 047	1 162	1 1	0 87	0 6	107	0 08
66 3	***1904 0**	1 378 8	191	1 738	1 44	1	0 785	0 67
43 3	**1905 0**	1 16656	0 21	1 586	1 4	1 0	0 694	0 49
311 71	**1906 0**	1 7 418	1 18	0 433	0 04	1 5	0 487	19
191 1	**1907 0**	0 51 66	048	1 049	0 61	0 3	0 80	78
7 53	**1908 0**	1 70 8	0 846	1 665	18	0 9	0 74	0 48
436 53	**1909 0**	85876	0 875	1 513	0 98	0 7	867	0 30
315 94	**1910 0**	1 ↓1638	1 673	0 360	1 55	1	0 661	0 0
19 35	**1911 0**	486	0 702	0 976	0 36	0 0	454	0 58
74 76	**1912 0**	76248	1 50	1 593	93	0 6	0 47	0 29
44 76	**1913 0**	0 55 96	1 5 9	1 440	0 73	4	0 156	0 10
3 0 17	**1914 0**	1 10858	559	0 87	1 30	0 9	0 834	0 69
199 58	**1915 0**	1 66619	1 357	0 9 4	0 10	1 5	6 7	0 39
78 99	***1916 0**	45468	0 386	1 5 0	67	0 3	0 4 1	0 10
444 99	**1917 0**	0 4316	416	1 367	0 47	0 1	0 330	0 80
324 40	**1918 0**	0 80 77	1 13	0 15	1 04	0 6	0 1 3	5
2 3 81	**1919 0**	1 35839	0 243	0 831	1 61	1	801	0 0
83	**1920 0**	0 14687	1 041	1 447	0 41	0 0	0 594	0 79
449 2	**1921 0**	1 70449	1 070	1 95	0 1	1 6	0 503	0 61
3 8 63	**1922 0**	0 49 97	0 100	0 14	0 78	0 4	0 296	0 31
2 8 5	**1923 0**	1 5059	897	758	1 35	0 9	0 90	0 01
87 46	**1924 0**	1 608 1	1 695	1 374	0 15	1 5	767	60
453 46	**1925 0**	1 39669	1 724	1 2	1 7	1 3	0 677	0 4
332 87	**1926 0**	18517	754	069	0 52	1	0 470	0 12
212 28	**1927 0**	0 74 79	1 52	685	1 09	6	0 63	0 71
91 69	***1928 0**	1 30040	0 581	1 30	1 66	1 2	0 057	0 41
457 69	**1929 0**	1 08888	0 611	1 149	1 46	1 0	0 850	0 23
337	**1930 0**	1 6465	1 408	1 765	7	1 5	0 643	0 81
16 51	**1931 0**	0 43498	438	0 613	0 84	3	0 437	0 5
95 9	**1932 0**	0 99 60	1 35	1 29	1 41	0 9	230	0 22
461 9	**1933 0**	0 78108	1 65	1 076	1 1	0 7	139	0 04
341 33	**1934 0**	1 33870	0 295	1 693	0 1	1 2	817	0 62
0 74	**1935 0**	0 1 718	1 09	0 540	0 58	0	0 610	0 3
100 15	***1936 0**	0 6848	0 1	1 156	1 15	0 6	403	0 03
466 15	**1937 0**	0 473 8	0 151	1 004	0 95	0 4	0 312	0 73
345 56	**1938 0**	1 3090	949	1 6 0	1 51	9	0 106	0 43
2 4 97	**1939 0**	1 58851	1 747	467	0 32	1 5	0 783	13
104 38	**1940 0**	37699	0 776	1 083	89	0 3	0 577	0 7
47 38	**1941 0**	0 16547	806	0 931	0 69	0 1	0 486	0 54
349 79	**1942 0**	723 9	1 603	1 547	1 6	0 7	0 79	0 4
9 2	**1943 0**	1 8071	0 633	394	0 6	1 2	073	0 83
108 61	**1944 0**	06919	1 430	1 011	0 63	0	750	0 53
474 61	**1945 0**	1 6 681	1 460	0 858	0 43	1 6	0 659	0 35
354 01	**1946 0**	0 41529	0 490	1 474	1 0	0 4	0 453	0 05
233 43	**1947 0**	0 97 91	1 287	0 3 2	1 57	0 9	0 246	0 64
11 84	**1948 0**	1 53 53	0 317	938	0 37	1 5	0 39	0 34
478 84	**1949 0**	1 319 1	0 346	0 785	18	1 3	0 833	0 16
358 25	**1950 0**	10749	1 144	1 402	0 75	0 1	626	0 74
485 59	P n ds	1 76914	1 768	1 769	1 77	1 8	0 884	0 88

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SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

IX *continued* Values at Epoch of Mean Longitude and the Arguments

1	2	3	4	5	6	7	8	9	10
Date	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
	°	d	d	d	d	d	d	d	d
1950·0	337·97972	0·52031	2·283	0·338	1·135	0·102	242·50	361·87	74·10
1951·0	91·46196	2·39757	0·635	0·612	1·680	0·656	206·34	269·19	439·10
***1952·0**	204·94420	0·74935	1·337	0·887	0·456	1·210	170·19	176·52	321·80
1953·0	161·91543	0·10114	0·688	0·391	0·232	0·995	135·03	84·84	205·49
1954·0	275·39767	1·97840	1·391	0·666	0·778	1·550	98·87	449·84	88·19
1955·0	28·87990	0·33019	2·093	0·940	1·323	0·335	62·72	357·17	453·19
***1956·0**	142·36214	2·20744	0·444	1·215	0·099	0·889	26·56	264·49	335·89
1957·0	99·33337	1·55923	2·147	0·719	1·644	0·674	392·56	172·82	219·59
1958·0	212·81561	3·43648	0·498	0·994	0·420	1·228	356·40	80·14	102·29
1959·0	326·29785	1·78827	1·200	1·268	0·965	0·013	320·24	445·14	467·29
***1960·0**	79·78009	0·14006	1·903	1·543	1·511	0·568	284·09	352·47	349·98
1961·0	36·75132	3·01731	1·254	1·047	1·287	0·353	248·93	260·79	233·68
1962·0	150·23356	1·36910	1·956	1·322	0·063	0·907	212·77	168·12	116·38
1963·0	263·71580	3·24635	0·308	1·596	0·608	1·461	176·62	75·45	481·38
***1964·0**	17·19804	1·59814	1·010	0·100	1·153	0·247	140·46	440·45	364·08
1965·0	334·16927	0·94993	0·362	1·375	0·929	0·032	105·30	348·77	247·78
1966·0	87·65151	2·82719	1·064	1·650	1·474	0·586	69·15	256·10	130·48
1967·0	201·13375	1·17898	1·766	0·154	0·250	1·140	32·99	163·42	13·17
***1968·0**	314·61599	3·05623	0·118	0·428	0·796	1·695	397·99	70·75	378·17
1969·0	271·58722	2·40802	1·820	1·703	0·572	1·480	362·83	436·75	261·87
1970·0	25·06946	0·75981	0·172	0·207	1·117	0·265	326·68	344·07	144·57
1971·0	138·55169	2·63706	0·874	0·482	1·662	0·819	290·52	251·40	27·27
***1972·0**	252·03393	0·98885	1·576	0·756	0·438	1·373	254·36	158·72	392·27
1973·0	209·00516	0·34064	0·928	0·260	0·214	1·158	219·20	67·05	275·97
1974·0	322·48740	2·21789	1·630	0·535	0·759	1·713	183·05	432·05	158·66
1975·0	75·96964	0·56968	2·332	0·810	1·305	0·498	146·89	339·37	41·36
***1976·0**	189·45188	2·44693	0·684	1·084	0·081	1·052	110·73	246·70	406·36
1977·0	146·42311	1·79872	0·036	0·588	1·626	0·837	75·58	155·02	290·06
1978·0	259·90535	0·15051	0·738	0·863	0·402	1·392	39·42	62·35	172·76
1979·0	13·38759	2·02776	1·440	1·137	0·947	0·177	3·26	427·35	55·46
***1980·0**	126·86983	0·37955	2·142	1·412	1·492	0·731	368·26	334·67	420·46
1981·0	83·84106	3·25681	1·494	0·916	1·268	0·516	333·11	243·00	304·15
1982·0	197·32330	1·60860	2·196	1·191	0·044	1·070	296·95	150·32	186·85
1983·0	310·80554	3·48585	0·548	1·465	0·590	1·625	260·79	57·65	69·55
***1984·0**	64·28778	1·83764	1·250	1·740	1·135	0·410	224·64	422·65	434·55
1985·0	21·25901	1·18943	0·601	1·244	0·911	0·195	189·48	330·97	318·25
1986·0	134·74125	3·06668	1·304	1·519	1·456	0·749	153·32	238·30	200·95
1987·0	248·22348	1·41847	2·006	0·023	0·232	1·304	117·16	145·62	83·64
***1988·0**	1·70572	3·29572	0·358	0·297	0·777	0·089	81·01	52·95	448·64
1989·0	318·67695	2·64751	2·060	1·572	0·553	1·643	45·85	418·95	332·34
1990·0	72·15919	0·99930	0·412	0·076	1·099	0·428	9·69	326·27	215·04
1991·0	185·64143	2·87655	1·114	0·351	1·644	0·982	374·69	233·60	97·74
***1992·0**	299·12367	1·22834	1·816	0·625	0·420	1·537	338·54	140·92	462·74
1993·0	256·09490	0·58013	1·168	0·129	0·196	1·322	303·38	49·25	346·44
1994·0	9·57714	2·45738	1·870	0·404	0·741	0·107	267·22	414·25	229·14
1995·0	123·05938	0·80917	0·221	0·679	1·286	0·661	231·07	321·58	111·83
***1996·0**	236·54162	2·68643	0·924	0·953	0·062	1·215	194·91	228·90	476·83
1997·0	193·51285	2·03822	0·275	0·457	1·608	1·001	159·75	137·23	360·53
1998·0	306·99509	0·39001	0·977	0·732	0·384	1·555	123·60	44·55	243·23
1999·0	60·47733	2·26726	1·680	1·007	0·929	0·340	87·44	409·55	125·93
***2000·0**	173·95957	0·61905	0·031	1·281	1·474	0·894	51·28	316·88	8·63
Periods	...	3·52546	2·350	1·771	1·769	1·769	401·16	457·67	482·30

Constant subtracted from Column 2: 0°·60000.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

IX *continued* Values at Epoch of Mean Longitude and the Arguments

		3	4	5	6	7	8	9
I	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**
d			l	l	d	d		d
358 5	**1950 0**	0 10749	1 144	1 402	0 75	0 1	0 626	0 74
37 66	**1951 0**	0 66510	173	249	1 3	0 6	0 419	0 45
117 7	**1952 0**	1 72	0 971	0 865	0 1	1 2	0 213	0 15
483 07	**1953 0**	1 1120	1 01	0 713	1 69	1 0	0 122	0 85
36 48	**1954 0**	1 56882	0 030	1 3 9	0 49	1 5	0 799	0 55
41 89	**1955 0**	0 35730	0 8 8	0 176	1 06	0 3	0 593	0 6
121 3	***1956 0**	91492	1 625	0 79	1 63	0 9	0 386	0 84
1 71	**1957 0**	0 70340	1 655	640	1 43	0 7	0 295	0 66
366 71	**1958 0**	1 261 2	0 685	1 56	0 23	1	0 088	0 36
46 12	**1959 0**	04950	1 48	0 104	0 80	0 0	0 766	0 06
125 53	**1960 0**	607	0 51	0 7 0	1 37	0 6	0 559	65
5 94	**1961 0**	0 3956	0 541	0 567	1 17	0 4	0 469	0 47
370 94	**1962 0**	0 953 1	1 339	1 183	1 74	0 9	0 26	0 17
250 35	**1963 0**	1 51083	0 368	0 031	0 54	1 5	0 055	0 76
1 976	***1964 0**	0 9931	1 166	647	1 11	0 3	0 733	0 46
1 17	**1965 0**	0 08779	1 196	0 494	0 91	1	0 642	0 28
375 17	**1966 0**	0 64541	0 5	1 111	1 48	0 7	0 435	0 87
54 59	**1967 0**	1 03 3	1 023	1 727	0 8	1 2	0 2 9	0 57
134 0	**1968 0**	1 76065	0 052	0 574	0 85	0 0	0 022	0 27
14 41	**1969 0**	1 54913	0 082	0 4 2	0 66	1 6	0 815	0 09
379 41	**1970 0**	33761	879	1 038	1 3	0 4	0 609	0 67
58 8	**1971 0**	0 895 3	1 677	1 654	3	0 9	0 40	0 38
138 3	***1972 0**	1 45 84	0 7 7	0 502	60	1 5	0 195	0 08
18 64	**1973 0**	1 413	0 736	0 349	0 40	1 3	0 104	78
383 64	**1974 0**	0 298	1 534	0 965	0 97	0 1	0 78	0 48
263 5	**1975 0**	0 58 4	0 563	1 581	1 54	6	575	0 19
14 46	***1976 0**	1 14504	1 361	0 4 9	0 34	1	0 369	0 77
87	**1977 0**	9335	1 390	0 76	0 14	1 0	0 78	0 59
387 87	**1978 0**	1 49114	42	0 892	0 71	1 5	0 071	0 9
267 8	**1979 0**	0 796	1 18	1 509	1 8	0 3	0 749	0
146 69	***1980 0**	837 4	0 47	0 356	0 08	0 9	0 54	0 58
7 1	**1981 0**	0 62572	0 77	3	1 65	0 7	0 451	0 40
39 10	**1982 0**	1 18334	1 74	0 82	0 45	1 2	0 45	0 10
271 51	**1983 0**	1 74 95	0 104	1 436	1 02	0 0	0 038	69
15 9	***1984 0**	0 52943	0 90	83	1 59	6	0 716	0 39
31 33	**1985 0**	0 31791	931	0 131	1 39	0 4	0 625	0 21
396 33	**1986 0**	87553	1 7 9	0 747	0 19	1 0	0 418	0 80
75 74	**1987 0**	43315	0 758	1 363	0 76	1 5	0 11	0 50
155 15	**1988 0**	163	1 556	0 11	1 33	0 3	0 005	0 20
35 56	**1989 0**	1011	1 585	0 058	1 14	1	798	0 02
4 56	**1990 0**	0 56773	0 615	674	1 71	0 7	591	0 61
279 97	**1991 0**	1 12535	1 413	1 9	51	1 2	0 385	0 31
159 38	**1992 0**	1 68 97	0 44	138	1 08	0 0	0 178	0 01
39 79	**1993 0**	1 47145	472	1 754	0 88	1 6	0 087	0 71
4 479	**1994 0**	5993	1 69	0 601	1 45	0 4	0 765	0 42
84 0	**1995 0**	0 81754	0 299	1 18	0 5	0 9	0 558	0 12
163 61	**1996 0**	1 37516	1 096	065	0 8	1 5	0 35	0 70
44	**1997 0**	1 16364	1 1 6	1 681	0 6	1 3	0 61	0 52
4 9	**1998 0**	1 7 1 6	0 156	0 529	1 19	1	0 54	0 2
88 43	**1999 0**	0 5 974	953	1 145	1 76	0 6	0 73	0 81
167 84	***2000 0**	1 06736	1 751	1 761	0 56	1 2	0 5 5	0 51
485 59	P ods	1 76914	1 768	1 769	1 77	1 8	0 884	0 88

T fi d tl T L git d d dt J pt O bt th t f C l m m tb ppl t d by th q tl f T bl XII XXIV

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

X Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8
Day	Mean Long.	A	B	C	D	E	F—I
	°	d	d	d	d	d	d
January 1	203·48899	1·00000	1·000	1·000	1·000	1·000	1·00
2	46·97798	2·00000	2·000	0·229	0·231	0·231	2·00
3	250·46698	3·00000	0·650	1·229	1·231	1·231	3·00
4	93·95597	0·47454	1·650	0·459	0·462	0·462	4·00
5	297·44496	1·47454	0·299	1·459	1·462	1·462	5·00
6	140·93395	2·47454	1·299	0·688	0·692	0·693	6·00
7	344·42295	3·47454	2·299	1·688	1·692	1·693	7·00
8	187·91194	0·94907	0·949	0·918	0·923	0·923	8·00
9	31·40093	1·94907	1·949	0·147	0·154	0·154	9·00
10	234·88992	2·94907	0·599	1·147	1·154	1·154	10·00
11	78·37892	0·42361	1·599	0·377	0·385	0·385	11·00
12	281·86791	1·42361	0·248	1·377	1·385	1·385	12·00
13	125·35690	2·42361	1·248	0·606	0·616	0·616	13·00
14	328·84589	3·42361	2·248	1·606	1·616	1·616	14·00
15	172·33489	0·89815	0·898	0·836	0·846	0·847	15·00
16	15·82388	1·89815	1·898	0·065	0·077	0·078	16·00
17	219·31287	2·89815	0·548	1·065	1·077	1·078	17·00
18	62·80186	0·37268	1·548	0·295	0·308	0·308	18·00
19	266·29086	1·37268	0·198	1·295	1·308	1·308	19·00
20	109·77985	2·37268	1·198	0·524	0·539	0·539	20·00
21	313·26884	3·37268	2·198	1·524	1·539	1·539	21·00
22	156·75783	0·84722	0·847	0·754	0·770	0·770	22·00
23	0·24683	1·84722	1·847	1·754	0·000	0·001	23·00
24	203·73582	2·84722	0·497	0·983	1·000	1·001	24·00
25	47·22481	0·32176	1·497	0·213	0·231	0·232	25·00
26	250·71380	1·32176	0·147	1·213	1·231	1·232	26·00
27	94·20280	2·32176	1·147	0·442	0·462	0·463	27·00
28	297·69179	3·32176	2·147	1·442	1·462	1·463	28·00
29	141·18078	0·79629	0·796	0·672	0·693	0·694	29·00
30	344·66977	1·79629	1·796	1·672	1·693	1·694	30·00
31	188·15877	2·79629	0·446	0·901	0·924	0·924	31·00
February 1	31·64776	0·27083	1·446	0·131	0·154	0·155	32·00
2	235·13675	1·27083	0·096	1·131	1·154	1·155	33·00
3	78·62574	2·27083	1·096	0·360	0·385	0·386	34·00
4	282·11474	3·27083	2·096	1·360	1·385	1·386	35·00
5	125·60373	0·74536	0·745	0·590	0·616	0·617	36·00
6	329·09272	1·74536	1·745	1·590	1·616	1·617	37·00
7	172·58171	2·74536	0·395	0·819	0·847	0·848	38·00
8	16·07070	0·21990	1·395	0·049	0·078	0·079	39·00
9	219·55970	1·21990	0·045	1·049	1·078	1·079	40·00
10	63·04869	2·21990	1·045	0·278	0·308	0·309	41·00
11	266·53768	3·21990	2·045	1·278	1·308	1·309	42·00
12	110·02667	0·69444	0·694	0·508	0·539	0·540	43·00
13	313·51567	1·69444	1·694	1·508	1·539	1·540	44·00
14	157·00466	2·69444	0·344	0·737	0·770	0·771	45·00
15	0·49365	0·16897	1·344	1·737	0·001	0·002	46·00
16	203·98264	1·16897	2·344	0·967	1·001	1·002	47·00
17	47·47164	2·16897	0·994	0·196	0·232	0·233	48·00
18	250·96063	3·16897	1·994	1·196	1·232	1·233	49·00
19	94·44962	0·64351	0·644	0·426	0·462	0·464	50·00
20	297·93861	1·64351	1·644	1·426	1·462	1·464	51·00
21	141·42761	2·64351	0·293	0·655	0·693	0·695	52·00
22	344·91660	0·11805	1·293	1·655	1·693	1·695	53·00

In Leap Year diminish the date in Columns 1, 9, by 1 day after Feb. 28

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

X Motions of Mean Longitude and the Arguments for Days

9				3	4	5	6
Day	**J**	**K**	**L**	**M**	**N O**	**P**	**Q**
January 1	0 003	1 0000	1 00	1 000	1 0	0 116	0 11
2	05	0 3086	3	0 231	3	0 31	0 23
3	0 008	1 3086	1 23	1 31	1 3	0 347	0 35
4	0 011	0 4617	0 464	46	0 46	463	0 46
5	0 14	1 4617	1 464	46	1 46	0 579	58
6	0 16	0 69259	0 696	0 693	0 69	0 694	0 69
7	0 019	1 69 59	1 696	1 693	1 69	0 810	0 81
8	0 022	9 345	9 8	925	9	0 042	0 04
9	0 0 5	0 15431	0 16	0 156	0 15	157	16
10	0 027	1 15431	1 160	1 156	1 15	73	0 7
11	0 030	0 38517	0 392	0 387	0 39	0 389	0 39
12	0 033	1 38517	1 39	1 387	1 39	0 5 4	0 5
13	0 036	0 61604	0 6 4	0 618	62	0 6	6
14	0 038	1 61604	1 624	1 618	1 62	0 736	0 73
15	0 041	84690	856	0 849	0 85	0 852	0 85
16	0 044	0 07776	0 88	0 080	0 08	0 083	0 8
17	0 047	1 07776	1 088	1 08	1 8	0 199	0 19
18	49	0 3086	0 320	0 311	31	0 314	31
19	0 052	1 30862	1 320	1 311	1 31	0 43	0 43
20	55	53948	0 55	0 543	0 54	546	54
21	0 58	1 53948	1 552	1 543	1 54	0 66	0 66
22	60	0 77035	0 784	0 774	0 77	0 777	0 77
23	0 063	0 00121	0 016	0 005	0 00	0 0 9	00
24	066	1 00121	1 016	1 05	1 0	0 1 5	0 1
25	68	0 3 07	0 248	0 236	0 3	0 40	0 3
26	71	1 3 7	1 48	1 36	1 3	0 356	0 35
27	0 74	46293	0 480	0 467	46	0 47	0 47
28	0 077	1 46 93	1 480	1 467	1 46	587	0 58
29	0 79	0 69380	0 71	0 698	0 69	0 703	0 7
30	08	1 69380	1 71	1 698	1 69	0 819	0 81
31	0 085	0 9 466	0 944	0 929	0 93	51	0 04
February 1	088	5552	176	0 161	0 16	0 166	0 16
2	090	1 1555	1 176	1 161	1 16	0 282	0 27
3	093	38638	0 4 9	0 39	0 39	0 397	0 39
4	096	1 38638	1 409	1 392	1 39	513	0 50
5	0 099	0 617 4	641	0 6 3	0 62	0 6 9	0 6
6	0 101	1 61724	1 641	1 6 3	1 62	0 745	0 74
7	0 104	0 84811	0 873	0 854	0 85	860	85
8	0 107	7897	0 1 5	0 085	0 08	09	0 08
9	0 11	1 07897	1 105	1 085	1 08	208	0 20
10	0 11	30983	337	0 316	0 31	0 3 3	0 32
11	0 115	1 3 983	1 337	1 316	1 31	439	0 43
12	0 118	0 54 69	569	0 548	0 54	555	54
13	0 1 1	1 54069	1 569	1 548	1 54	0 67	0 66
14	0 1 3	77155	0 8 1	0 779	0 77	0 786	0 78
15	0 126	0 00242	0 33	010	0 00	0 018	01
16	0 129	1 4	1 033	1 010	1 00	0 133	0 12
17	0 13	0 33 8	0 65	0 41	0 23	0 49	0 4
18	0 134	1 33 8	1 65	1 41	1 3	0 365	0 35
19	0 137	46414	0 497	0 47	0 47	0 480	0 47
20	0 140	1 46414	1 497	1 472	1 47	0 596	0 58
21	0 142	0 69500	0 7 9	0 703	0 70	0 712	0 70
22	0 145	1 69500	1 7 9	1 703	1 70	0 828	0 81

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SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8
Day	Mean Long.	A	B	C	D	E	F—I
	°	d	d	d	d	d	d
February 23	188·40559	1·11805	2·293	0·885	0·924	0·925	54·00
24	31·89458	2·11805	0·943	0·114	0·155	0·156	55·00
25	235·38358	3·11805	1·943	1·114	1·155	1·156	56·00
26	78·87257	0·59258	0·593	0·344	0·386	0·387	57·00
27	282·36156	1·59258	1·593	1·344	1·386	1·387	58·00
28	125·85055	2·59258	0·242	0·573	0·616	0·618	59·00
March 1	329·33955	0·06712	1·242	1·573	1·616	1·618	60·00
2	172·82854	1·06712	2·242	0·803	0·847	0·849	61·00
3	16·31753	2·06712	0·892	0·032	0·078	0·080	62·00
4	219·80652	3·06712	1·892	1·032	1·078	1·080	63·00
5	63·29552	0·54166	0·542	0·262	0·309	0·310	64·00
6	266·78451	1·54166	1·542	1·262	1·309	1·310	65·00
7	110·27350	2·54166	0·191	0·491	0·540	0·541	66·00
8	313·76249	0·01619	1·191	1·491	1·540	1·541	67·00
9	157·25149	1·01619	2·191	0·721	0·770	0·772	68·00
10	0·74048	2·01619	0·841	1·721	0·001	0·003	69·00
11	204·22947	3·01619	1·841	0·950	1·001	1·003	70·00
12	47·71846	0·49073	0·491	0·180	0·232	0·234	71·00
13	251·20746	1·49073	1·491	1·180	1·232	1·234	72·00
14	94·69645	2·49073	0·140	0·409	0·463	0·465	73·00
15	298·18544	3·49073	1·140	1·409	1·463	1·465	74·00
16	141·67443	0·96527	2·140	0·638	0·694	0·696	75·00
17	345·16343	1·96527	0·790	1·638	1·694	1·696	76·00
18	188·65242	2·96527	1·790	0·868	0·924	0·926	77·00
19	32·14141	0·43980	0·440	0·097	0·155	0·157	78·00
20	235·63040	1·43980	1·440	1·097	1·155	1·157	79·00
21	79·11939	2·43980	0·089	0·327	0·386	0·388	80·00
22	282·60839	3·43980	1·089	1·327	1·386	1·388	81·00
23	126·09738	0·91434	2·089	0·556	0·617	0·619	82·00
24	329·58637	1·91434	0·739	1·556	1·617	1·619	83·00
25	173·07536	2·91434	1·739	0·786	0·848	0·850	84·00
26	16·56436	0·38887	0·389	0·015	0·079	0·081	85·00
27	220·05335	1·38887	1·389	1·015	1·079	1·081	86·00
28	63·54234	2·38887	0·039	0·245	0·309	0·311	87·00
29	267·03133	3·38887	1·039	1·245	1·309	1·311	88·00
30	110·52033	0·86341	2·039	0·474	0·540	0·542	89·00
31	314·00932	1·86341	0·688	1·474	1·540	1·542	90·00
April 1	157·49831	2·86341	1·688	0·704	0·771	0·773	91·00
2	0·98730	0·33795	0·338	1·704	0·002	0·004	92·00
3	204·47630	1·33795	1·338	0·933	1·002	1·004	93·00
4	47·96529	2·33795	2·338	0·163	0·233	0·235	94·00
5	251·45428	3·33795	0·988	1·163	1·233	1·235	95·00
6	94·94327	0·81248	1·988	0·392	0·463	0·466	96·00
7	298·43227	1·81248	0·637	1·392	1·463	1·466	97·00
8	141·92126	2·81248	1·637	0·622	0·694	0·697	98·00
9	345·41025	0·28702	0·287	1·622	1·694	1·697	99·00
10	188·89924	1·28702	1·287	0·851	0·925	0·927	100·00
11	32·38824	2·28702	2·287	0·081	0·156	0·158	101·00
12	235·87723	3·28702	0·937	1·081	1·156	1·158	102·00
13	79·36622	0·76156	1·937	0·310	0·387	0·389	103·00
14	282·85521	1·76156	0·586	1·310	1·387	1·389	104·00
15	126·34421	2·76156	1·586	0·540	0·617	0·620	105·00
16	329·83320	0·23609	0·236	1·540	1·617	1·620	106·00

In Leap Year diminish the date in Columns 1, 9, by 1 day after Feb. 28.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

9				3	4	5	6
Day	J	K	L	M	N O	P	Q
	y	1		d	d	d	1
February 23	o 148	o 9 587	o 961	o 934	o 93	o 59	o 05
24	o 151	o 15673	o 193	o 166	o 16	o 175	o 16
25	153	1 15673	1 93	1 166	1 16	o 291	28
26	o 156	38759	o 425	397	o 39	o 406	o 39
27	o 159	1 38759	1 425	1 397	1 39	o 522	o 51
28	o 16	o 61845	o 657	o 6 8	o 6	o 638	62
March 1	o 164	1 61845	1 657	1 628	1 6	o 753	o 74
2	o 167	o 84931	889	o 859	o 85	o 869	o 85
3	o 170	08018	o 1 1	o 09	o 08	o 101	o 09
4	o 173	1 08018	1 121	1 90	1 08	o 216	20
5	175	31104	o 353	o 321	31	o 33	o 3
6	178	1 31104	1 353	1 321	1 31	o 448	43
7	o 181	o 54190	o 585	o 55	o 54	o 563	o 55
8	o 184	1 54190	1 585	1 55	1 54	o 679	o 66
9	o 186	o 77 76	817	784	o 78	o 795	o 78
10	o 189	o 363	o 049	o 015	o 01	o o 6	o 01
11	o 19	1 00363	1 49	1 015	1 01	o 14	o 1
12	o 195	o 23449	o 81	o 46	o 24	o 258	o 4
13	o 197	1 23449	1 81	1 246	1 4	o 374	o 36
14	200	o 46535	o 513	o 477	o 47	o 489	o 47
15	o 2 3	1 46535	1 513	1 477	1 47	o 605	o 59
16	o 205	o 69621	o 745	o 708	o 70	o 721	o 70
17	8	1 696 1	1 745	1 708	1 70	o 836	o 82
18	o 11	o 92707	o 977	o 939	o 93	068	o 05
19	o 14	o 15794	o 209	o 170	o 16	o 184	o 16
20	o 16	1 15794	1 209	1 170	1 16	299	o 28
21	o 219	o 38880	441	o 40	o 39	o 415	o 40
22	o 222	1 38880	1 441	1 402	1 39	o 531	o 51
23	o 2 5	o 61966	o 673	o 633	o 62	o 646	o 63
24	227	1 61966	1 673	1 633	1 62	o 762	o 74
25	o 30	o 85052	905	o 864	85	878	86
26	o 233	o 08139	o 137	o 095	o 08	o 109	09
27	o 236	1 08139	1 137	1 095	1 08	o 5	o 20
28	38	o 312 5	o 369	3 6	o 3	o 341	o 32
29	41	1 31 25	1 369	1 326	1 3	457	o 43
30	o 44	o 54311	o 601	o 557	o 55	o 57	o 55
31	o 47	1 54311	1 601	1 557	1 55	o 688	o 67
April 1	o 249	77397	o 833	o 787	o 78	804	o 78
2	o 252	o 483	65	o	o 01	o 35	o o
3	255	1 0483	1 65	1 20	1 01	o 151	o 13
4	o 58	o 3570	o 297	o 51	o 4	o 67	o 24
5	o 60	1 2357	1 97	1 51	1 4	38	o 36
6	63	o 46656	o 529	o 48	o 47	o 498	o 47
7	66	1 46656	1 5 9	1 48	1 47	o 614	o 59
8	268	o 6974	o 761	o 713	70	o 7 9	o 71
9	27	1 69742	1 761	1 713	1 70	o 845	o 82
10	274	9 828	o 994	o 944	o 93	o 77	o 05
11	o 77	o 15915	o 2 6	175	o 16	o 192	o 17
12	o 79	1 15915	1 2 6	1 175	1 16	o 308	o 28
13	o 82	o 39 1	o 458	o 407	o 39	o 424	o 40
14	o 285	1 39001	1 458	1 407	1 39	o 540	o 51
15	o 288	o 6 087	690	o 638	o 62	o 655	o 63
16	o 290	1 62087	1 690	1 638	1 62	o 771	o 74

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1		2	3	4	5	6	7	8
Day		Mean Long.	**A**	**B**	**C**	**D**	**E**	**F—I**
		°	d	d	d	d	d	d
April	**17**	173·32219	1·23609	1·236	0·769	0·848	0·851	107·00
	18	16·81118	2·23609	2·236	1·769	0·079	0·082	108·00
	19	220·30018	3·23609	0·886	0·999	1·079	1·082	109·00
	20	63·78917	0·71063	1·886	0·228	0·310	0·312	110·00
	21	267·27816	1·71063	0·535	1·228	1·310	1·312	111·00
	22	110·76715	2·71063	1·535	0·458	0·541	0·543	112·00
	23	314·25615	0·18517	0·185	1·458	1·541	1·543	113·00
	24	157·74514	1·18517	1·185	0·687	0·771	0·774	114·00
	25	1·23413	2·18517	2·185	1·687	0·002	0·005	115·00
	26	204·72312	3·18517	0·835	0·917	1·002	1·005	116·00
	27	48·21211	0·65970	1·835	0·146	0·233	0·236	117·00
	28	251·70111	1·65970	0·485	1·146	1·233	1·236	118·00
	29	95·19010	2·65970	1·485	0·376	0·464	0·467	119·00
	30	298·67909	0·13424	0·134	1·376	1·464	1·467	120·00
May	**1**	142·16808	1·13424	1·134	0·605	0·695	0·698	121·00
	2	345·65708	2·13424	2·134	1·605	1·695	1·698	122·00
	3	189·14607	3·13424	0·784	0·835	0·925	0·928	123·00
	4	32·63506	0·60878	1·784	0·064	0·156	0·159	124·00
	5	236·12405	1·60878	0·434	1·064	1·156	1·159	125·00
	6	79·61305	2·60878	1·434	0·294	0·387	0·390	126·00
	7	283·10204	0·08331	0·083	1·294	1·387	1·390	127·00
	8	126·59103	1·08331	1·083	0·523	0·618	0·621	128·00
	9	330·08002	2·08331	2·083	1·523	1·618	1·621	129·00
	10	173·56902	3·08331	0·733	0·753	0·849	0·852	130·00
	11	17·05801	0·55785	1·733	1·753	0·079	0·083	131·00
	12	220·54700	1·55785	0·383	0·982	1·079	1·083	132·00
	13	64·03599	2·55785	1·383	0·212	0·310	0·313	133·00
	14	267·52499	0·03238	0·032	1·212	1·310	1·313	134·00
	15	111·01398	1·03238	1·032	0·441	0·541	0·544	135·00
	16	314·50297	2·03238	2·032	1·441	1·541	1·544	136·00
	17	157·99196	3·03238	0·682	0·671	0·772	0·775	137·00
	18	1·48096	0·50692	1·682	1·671	0·003	0·006	138·00
	19	204·96995	1·50692	0·332	0·900	1·003	1·006	139·00
	20	48·45894	2·50692	1·332	0·130	0·233	0·237	140·00
	21	251·94793	3·50692	2·332	1·130	1·233	1·237	141·00
	22	95·43693	0·98146	0·981	0·359	0·464	0·468	142·00
	23	298·92592	1·98146	1·981	1·359	1·464	1·468	143·00
	24	142·41491	2·98146	0·631	0·589	0·695	0·699	144·00
	25	345·90390	0·45599	1·631	1·589	1·695	1·699	145·00
	26	189·39290	1·45599	0·281	0·818	0·926	0·929	146·00
	27	32·88189	2·45599	1·281	0·048	0·157	0·160	147·00
	28	236·37088	3·45599	2·281	1·048	1·157	1·160	148·00
	29	79·85987	0·93053	0·931	0·277	0·387	0·391	149·00
	30	283·34887	1·93053	1·931	1·277	1·387	1·391	150·00
	31	126·83786	2·93053	0·580	0·506	0·618	0·622	151·00
June	**1**	330·32685	0·40507	1·580	1·506	1·618	1·622	152·00
	2	173·81584	1·40507	0·230	0·736	0·849	0·853	153·00
	3	17·30483	2·40507	1·230	1·736	0·080	0·084	154·00
	4	220·79383	3·40507	2·230	0·965	1·080	1·084	155·00
	5	64·28282	0·87960	0·880	0·195	0·311	0·314	156·00
	6	267·77181	1·87960	1·880	1·195	1·311	1·314	157·00
	7	111·26080	2·87960	0·529	0·424	0·541	0·545	158·00

In Leap Year diminish the date in Columns 1, 9, by 1 day after Feb. 28.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

9				3	4	5	6
Day	**J**	**K**	**L**	**M**	**N, O**	**P**	**Q**
		1				d	d
April **17**	0 93	0 85173	0 9 2	0 869	0 86	002	0 86
18	0 96	0 08 59	0 154	0 1	0 09	0 118	09
19	99	1 08 59	1 154	1 1	1 9	34	0 1
20	0 3 1	31346	0 386	0 331	0 3	35	0 32
21	3 4	1 31346	1 386	1 331	1 3	0 465	44
22	307	0 5443	618	0 56	55	0 581	55
23	310	1 5443	1 618	1 562	1 55	0 697	0 67
24	0 31	0 77518	0 850	0 793	0 78	0 81	78
25	0 315	00604	0 08	0 5	0 1	0 044	0
26	0 318	1 00604	1 8	1 5	1 01	0 160	0 13
27	3 1	3691	314	0 256	0 24	0 75	0 25
28	0 3 3	1 3691	1 314	1 56	1 4	0 391	36
29	326	0 46777	0 546	0 487	0 47	0 507	0 48
30	3 9	1 46777	1 546	1 487	1 47	0 6 3	0 59
May **1**	0 33	0 69863	0 778	0 718	0 70	0 738	0 71
2	334	1 69863	0 010	1 718	1 70	854	0 82
3	0 337	9 949	1 010	0 949	0 93	0 085	0 05
4	0 34	0 16035	24	0 18	0 16	0 201	0 17
5	0 342	1 16035	1 4	1 18	1 16	0 317	29
6	0 345	391 2	0 474	0 411	0 40	0 433	0 40
7	0 348	1 39122	1 474	1 411	1 40	0 548	0 5
8	0 351	0 62 08	706	643	0 63	0 664	0 63
9	0 353	1 6 8	1 706	1 643	1 63	0 780	0 75
10	356	85 94	0 938	874	0 86	011	0 86
11	0 359	0 08380	17	1 5	0 09	127	0 09
12	0 36	1 08380	1 170	1 105	1 09	0 43	0 1
13	0 364	0 31466	0 40	336	0 3	0 358	0 33
14	367	1 31466	1 40	1 336	1 32	0 474	0 44
15	37	0 54553	0 634	567	55	0 590	0 56
16	373	1 54553	1 634	1 567	1 55	706	0 67
17	0 375	0 77639	0 866	0 798	78	0 8 1	0 79
18	378	0 725	0 98	0 029	0 1	053	0 02
19	381	1 007 5	1 098	1 0 9	1 01	0 168	0 13
20	384	0 3811	33	0 61	0 4	0 284	0 25
21	386	1 3811	1 33	1 61	1 24	0 400	0 36
22	389	0 46898	0 56	49	0 47	516	0 48
23	39	1 46898	1 562	1 492	1 47	631	0 60
24	0 395	0 69984	0 794	0 7 3	7	0 747	71
25	397	1 69984	6	1 723	1 70	863	0 83
26	0 40	0 93070	1 6	0 954	94	094	0 6
27	403	0 16156	0 58	185	0 17	0 10	0 17
28	0 4 5	1 16156	1 58	1 185	1 17	0 3 6	0 29
29	0 408	0 39242	0 490	0 416	40	0 441	0 40
30	0 411	1 39 4	1 490	1 416	1 40	0 557	0 52
31	414	0 6 3 9	0 7 2	0 647	0 63	673	0 64
June **1**	0 416	1 6 3 9	1 7	1 647	1 63	0 789	0 75
2	0 419	0 85415	0 954	0 879	86	0 0 0	0 87
3	0 4 2	0 08501	0 186	0 110	09	0 136	0 10
4	4 5	1 8501	1 186	1 110	1 09	0 51	0 1
5	0 427	31587	0 418	0 341	0 32	0 367	0 33
6	430	1 31587	1 418	1 341	1 32	0 483	0 44
7	0 433	0 54674	650	0 57	55	0 599	0 56

Tables of Longitude, Latitude, and Radius Vector

X *continued* Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8
Day	Mean Long.	A	B	C	D	E	F—I
	°	d	d	d	d	d	d
June 8	314·74980	0·35414	1·529	1·424	1·541	1·545	159·00
9	158·23879	1·35414	0·179	0·654	0·772	0·776	160·00
10	1·72778	2·35414	1·179	1·654	0·003	0·007	161·00
11	205·21677	3·35414	2·179	0·883	1·003	1·007	162·00
12	48·70577	0·82868	0·829	0·113	0·234	0·238	163·00
13	252·19476	1·82868	1·829	1·113	1·234	1·238	164·00
14	95·68375	2·82868	0·478	0·342	0·465	0·469	165·00
15	299·17274	0·30321	1·478	1·342	1·465	1·469	166·00
16	142·66174	1·30321	0·128	0·572	0·695	0·700	167·00
17	346·15073	2·30321	1·128	1·572	1·695	1·700	168·00
18	189·63972	3·30321	2·128	0·801	0·926	0·930	169·00
19	33·12871	0·77775	0·778	0·031	0·157	0·161	170·00
20	236·61771	1·77775	1·778	1·031	1·157	1·161	171·00
21	80·10670	2·77775	0·427	0·260	0·388	0·392	172·00
22	283·59569	0·25229	1·427	1·260	1·388	1·392	173·00
23	127·08468	1·25229	0·077	0·490	0·619	0·623	174·00
24	330·57368	2·25229	1·077	1·490	1·619	1·623	175·00
25	174·06267	3·25229	2·077	0·719	0·849	0·854	176·00
26	17·55166	0·72682	0·727	1·719	0·080	0·085	177·00
27	221·04065	1·72682	1·727	0·949	1·080	1·085	178·00
28	64·52965	2·72682	0·377	0·178	0·311	0·315	179·00
29	268·01864	0·20136	1·377	1·178	1·311	1·315	180·00
30	111·50763	1·20136	0·026	0·408	0·542	0·546	181·00
July 1	314·99662	2·20136	1·026	1·408	1·542	1·546	182·00
2	158·48562	3·20136	2·026	0·637	0·773	0·777	183·00
3	1·97461	0·67589	0·676	1·637	0·003	0·008	184·00
4	205·46360	1·67589	1·676	0·867	1·003	1·008	185·00
5	48·95259	2·67589	0·326	0·096	0·234	0·239	186·00
6	252·44159	0·15043	1·326	1·096	1·234	1·239	187·00
7	95·93058	1·15043	2·326	0·326	0·465	0·470	188·00
8	299·41957	2·15043	0·975	1·326	1·465	1·470	189·00
9	142·90856	3·15043	1·975	0·555	0·696	0·701	190·00
10	346·39756	0·62497	0·625	1·555	1·696	1·701	191·00
11	189·88655	1·62497	1·625	0·785	0·927	0·931	192·00
12	33·37554	2·62497	0·275	0·014	0·157	0·162	193·00
13	236·86453	0·09950	1·275	1·014	1·157	1·162	194·00
14	80·35352	1·09950	2·275	0·244	0·388	0·393	195·00
15	283·84252	2·09950	0·924	1·244	1·388	1·393	196·00
16	127·33151	3·09950	1·924	0·473	0·619	0·624	197·00
17	330·82050	0·57404	0·574	1·473	1·619	1·624	198·00
18	174·30949	1·57404	1·574	0·703	0·850	0·855	199·00
19	17·79849	2·57404	0·224	1·703	0·081	0·086	200·00
20	221·28748	0·04858	1·224	0·932	1·081	1·086	201·00
21	64·77647	1·04858	2·224	0·162	0·311	0·316	202·00
22	268·26546	2·04858	0·873	1·162	1·311	1·316	203·00
23	111·75446	3·04858	1·873	0·391	0·542	0·547	204·00
24	315·24345	0·52311	0·523	1·391	1·542	1·547	205·00
25	158·73244	1·52311	1·523	0·621	0·773	0·778	206·00
26	2·22143	2·52311	0·173	1·621	0·004	0·009	207·00
27	205·71043	3·52311	1·173	0·851	1·004	1·009	208·00
28	49·19942	0·99765	2·173	0·080	0·235	0·240	209·00
29	252·68841	1·99765	0·822	1·080	1·235	1·240	210·00

In Leap Year diminish the date in Columns 1, 9, by 1 day after Feb. 28.

SATELLITE I

Tables of Longıtude, Latıtude, and Radıus Vector

X *contınued* **Motıons of Mean Longıtude and the Arguments for Days**

9				3	4	5	6
D y	**J**	**K**	**L**	**M**	**N O**	**P**	**Q**
	y	d	l			d	d
June 8	0 436	1 54674	1 65	1 57	1 55	0 714	0 67
9	0 438	0 77760	0 882	0 803	0 78	0 830	0 9
10	0 441	0 00846	0 114	34	0 01	0 061	0 02
11	0 444	1 0 846	1 114	1 034	1 01	0 177	0 14
12	0 447	393	346	0 66	0 4	93	0 5
13	0 449	1 2393	1 346	1 66	1 4	0 409	0 37
14	0 45	0 47 18	0 579	497	0 48	0 5 4	0 48
15	0 455	1 47018	1 579	1 497	1 48	0 640	0 60
16	0 458	0 7 105	0 811	0 7 8	0 71	0 756	0 71
17	460	1 701 5	043	1 7 8	1 71	0 87	83
18	463	0 93191	1 043	0 959	0 94	0 103	0 06
19	0 466	0 16 77	0 275	0 190	17	0 19	0 18
20	0 468	1 16 77	1 75	1 190	1 17	0 334	0 29
21	0 471	0 39363	0 507	0 4 1	0 40	450	0 41
22	0 474	1 39363	1 507	1 4 1	1 40	0 566	0 52
23	0 477	0 6 450	0 739	0 65	0 63	0 68	0 64
24	0 479	1 6 450	1 739	1 65	1 63	0 797	0 75
25	48	0 85536	0 971	0 884	0 86	0 29	0 87
26	0 485	0 086 2	0 2 3	0 115	0 09	0 144	0 10
27	0 488	1 086	1 03	1 115	1 09	0 260	0 22
28	0 490	317 8	0 435	0 346	0 3	0 376	0 33
29	0 493	1 31708	1 435	1 346	1 3	0 492	0 45
30	496	0 54794	0 667	0 577	55	0 607	0 56
July 1	499	1 54794	1 667	1 577	1 55	0 7 3	0 68
2	0 5 1	0 77881	0 899	0 808	0 79	0 839	0 79
3	5 4	0 00967	0 131	0 039	0	7	0 0
4	507	1 0 967	1 131	1 039	1 0	186	0 14
5	0 510	4053	363	0 27	0 5	0 3	0 26
6	0 512	1 4053	1 363	1 270	1 5	0 417	0 37
7	0 515	0 47139	595	0 50	0 48	0 533	0 49
8	0 518	1 47139	1 595	1 50	1 48	0 649	0 6
9	0 5	70 6	8 7	0 733	0 71	0 765	0 72
10	0 5 3	1 70 6	0 59	1 733	1 71	0 880	0 83
11	0 526	0 9331	1 59	0 964	0 94	0 11	0 06
12	0 5 9	16398	0 91	0 195	17	0 2 7	18
13	0 532	1 16398	1 291	1 195	1 17	0 343	0 29
14	0 534	0 39484	0 5 3	4 6	0 40	0 459	41
15	537	1 39484	1 5 3	1 4 6	1 40	0 575	0 53
16	0 540	6 570	755	657	63	0 690	64
17	0 54	1 6 57	1 755	1 657	1 63	806	0 76
18	0 545	0 85657	0 987	0 888	0 86	0 038	0 87
19	0 548	08743	0 219	1 0	0 09	0 153	0 10
20	0 551	1 08743	1 19	1 1 0	1 09	69	22
21	553	318 9	0 451	0 351	0 33	0 385	0 33
22	556	1 318 9	1 451	1 351	1 33	0 5 0	0 45
23	0 559	0 549 5	683	0 58	0 56	0 616	0 57
24	0 56	1 54915	1 683	1 58	1 56	0 732	0 68
25	0 564	0 780	0 915	0 813	0 79	0 848	80
26	567	0 01088	147	0 044	0 0	79	0 03
27	0 57	1 01 88	1 147	1 44	1 02	0 195	0 14
28	0 573	0 24174	0 379	0 275	0 25	0 310	0 26
29	0 575	1 24174	1 379	1 75	1 5	0 426	0 37

I L pY dimI i hth d t i Ol m by d y ft F b 8

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8
Day	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F—I**
	°	d	d	d	d	d	d
July 30	96·17740	2·99765	1·822	0·309	0·465	0·471	211·00
31	299·66640	0·47219	0·472	1·309	1·465	1·471	212·00
August 1	143·15539	1·47219	1·472	0·539	0·696	0·702	213·00
2	346·64438	2·47219	0·122	1·539	1·696	1·702	214·00
3	190·13337	3·47219	1·122	0·768	0·927	0·932	215·00
4	33·62237	0·94672	2·122	1·768	0·158	0·163	216·00
5	237·11136	1·94672	0·772	0·998	1·158	1·163	217·00
6	80·60035	2·94672	1·772	0·227	0·389	0·394	218·00
7	284·08934	0·42126	0·421	1·227	1·389	1·394	219·00
8	127·57834	1·42126	1·421	0·457	0·619	0·625	220·00
9	331·06733	2·42126	0·071	1·457	1·619	1·625	221·00
10	174·55632	3·42126	1·071	0·686	0·850	0·856	222·00
11	18·04531	0·89580	2·071	1·686	0·081	0·087	223·00
12	221·53431	1·89580	0·721	0·915	1·081	1·087	224·00
13	65·02330	2·89580	1·721	0·145	0·312	0·317	225·00
14	268·51229	0·37033	0·370	1·145	1·312	1·317	226·00
15	112·00128	1·37033	1·370	0·374	0·543	0·548	227·00
16	315·49028	2·37033	0·020	1·374	1·543	1·548	228·00
17	158·97927	3·37033	1·020	0·604	0·773	0·779	229·00
18	2·46826	0·84487	2·020	1·604	0·004	0·010	230·00
19	205·95725	1·84487	0·670	0·833	1·004	1·010	231·00
20	49·44624	2·84487	1·670	0·063	0·235	0·241	232·00
21	252·93524	0·31941	0·319	1·063	1·235	1·241	233·00
22	96·42423	1·31941	1·319	0·292	0·466	0·472	234·00
23	299·91322	2·31941	2·319	1·292	1·466	1·472	235·00
24	143·40221	3·31941	0·969	0·522	0·697	0·703	236·00
25	346·89121	0·79394	1·969	1·522	1·697	1·703	237·00
26	190·38020	1·79394	0·619	0·751	0·927	0·933	238·00
27	33·86919	2·79394	1·619	1·751	0·158	0·164	239·00
28	237·35818	0·26848	0·268	0·981	1·158	1·164	240·00
29	80·84718	1·26848	1·268	0·210	0·389	0·395	241·00
30	284·33617	2·26848	2·268	1·210	1·389	1·395	242·00
31	127·82516	3·26848	0·918	0·440	0·620	0·626	243·00
September 1	331·31415	0·74301	1·918	1·440	1·620	1·626	244·00
2	174·80315	1·74301	0·568	0·669	0·851	0·857	245·00
3	18·29214	2·74301	1·568	1·669	0·081	0·088	246·00
4	221·78113	0·21755	0·218	0·899	1·081	1·088	247·00
5	65·27012	1·21755	1·218	0·128	0·312	0·318	248·00
6	268·75912	2·21755	2·218	1·128	1·312	1·318	249·00
7	112·24811	3·21755	0·867	0·358	0·543	0·549	250·00
8	315·73710	0·69209	1·867	1·358	1·543	1·549	251·00
9	159·22609	1·69209	0·517	0·587	0·774	0·780	252·00
10	2·71509	2·69209	1·517	1·587	0·005	0·011	253·00
11	206·20408	0·16662	0·167	0·817	1·005	1·011	254·00
12	49·69307	1·16662	1·167	0·046	0·236	0·242	255·00
13	253·18206	2·16662	2·167	1·046	1·236	1·242	256·00
14	96·67106	3·16662	0·816	0·276	0·466	0·473	257·00
15	300·16005	0·64116	1·816	1·276	1·466	1·473	258·00
16	143·64904	1·64116	0·466	0·505	0·697	0·704	259·00
17	347·13803	2·64116	1·466	1·505	1·697	1·704	260·00
18	190·62703	0·11570	0·116	0·735	0·928	0·934	261·00
19	34·11602	1·11570	1·116	1·735	0·159	0·165	262·00

In Leap Year diminish the date in Columns 1, 9, by 1 day after Feb. 28.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

9				3	4	5	6
Day	J	K	L	M	N, O	P	Q
		d		d			
July 30	0 578	0 47 60	0 611	0 506	0 48	0 54	49
31	0 581	1 4726	1 611	1 506	1 48	0 658	60
August 1	584	0 70346	0 843	738	0 71	0 773	0 72
2	586	1 7 346	075	1 738	1 71	0 0 5	0 84
3	0 589	0 93433	1 075	0 969	0 94	1 1	0 07
4	59	0 16519	0 307		0 17	36	0 18
5	595	1 16519	1 3 7	1 0	1 17	0 35	3
6	0 597	39605	0 539	0 431	0 4	0 468	41
7	0 600	1 396 5	1 539	1 431	1 40	0 583	53
8	0 603	62691	0 771	0 662	0 63	0 699	0 64
9	0 605	1 6 691	0 003	1 662	1 63	0 815	0 76
10	608	0 85777	1 003	0 893	0 87	0 046	0 00
11	0 611	8864	0 35	0 1 4	0 10	0 162	0 11
12	0 614	1 8864	1 35	1 1 4	1 10	0 78	0
13	0 616	0 3195	0 467	0 356	0 33	0 393	0 34
14	0 619	1 31950	1 467	1 356	1 33	0 509	0 45
15	0 6	0 55036	0 699	0 587	0 56	0 625	0 57
16	625	1 55 36	1 699	1 587	1 56	0 741	68
17	0 627	781	0 931	0 818	0 79	0 856	0 80
18	0 630	0 01 09	0 164	049	0 02	0 088	0 03
19	0 633	1 01 9	1 164	1 049	1 02	0 204	0 15
20	0 636	0 4 95	0 396	0 280	0 25	0 319	0 26
21	0 638	1 24 95	1 396	1 8	1 5	435	0 38
22	641	0 47381	6 8	0 511	0 48	551	0 49
23	0 644	1 47381	1 6 8	1 511	1 48	666	61
24	647	0 70467	0 860	743	71	0 78	0 72
25	0 649	1 70467	0 92	1 743	1 71	0 014	84
26	65	0 93553	1 9	0 974	0 94	0 129	0 07
27	655	0 16640	0 3 4	0 05	0 17	0 45	0 19
28	0 658	1 1664	1 3 4	1 05	1 17	0 361	0 30
29	0 660	0 39726	0 556	0 436	0 41	0 476	0 42
30	663	1 39726	1 556	1 436	1 41	0 592	0 53
31	0 666	0 6 812	0 788	0 667	0 64	0 708	0 65
September 1	0 668	1 6 812	0 02	1 667	1 64	824	0 76
2	0 671	0 85898	1 02	0 898	0 87	0 055	0 00
3	0 674	0 08985	0 5	0 1 9	0 1	0 171	0 11
4	677	1 8985	1 5	1 129	1 10	0 87	3
5	679	3 071	0 484	0 361	0 33	0 40	0 34
6	0 68	1 3 071	1 484	1 361	1 33	0 518	0 46
7	0 685	55157	716	0 59	0 56	0 634	0 57
8	688	1 55157	1 716	1 59	1 56	0 749	0 69
9	69	0 78 43	0 948	0 8 3	0 79	0 865	0 80
10	0 693	01329	0 180	0 54	0 0	0 097	0 3
11	0 696	1 013 9	1 180	1 054	1 0	0 21	0 15
12	0 699	24416	0 41	0 85	0 5	0 328	0 26
13	7 1	1 4416	1 41	1 285	1 25	0 444	0 38
14	0 704	0 4750	644	0 516	0 48	0 559	0 50
15	0 707	1 475	1 644	1 516	1 48	0 675	0 61
16	0 710	0 70588	0 876	0 747	0 71	0 791	73
17	712	1 70588	0 1 8	1 747	1 71	0 0	0 84
18	0 715	0 93674	1 108	0 979	0 95	0 138	0 07
19	0 718	0 16761	340	0 210	0 18	0 54	0 19

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SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8
Day	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F—I**
	°	d	d	d	d	d	d
September 20	237·60501	2·11570	2·116	0·964	1·159	1·165	263·00
21	81·09400	3·11570	0·765	0·194	0·390	0·396	264·00
22	284·58300	0·59023	1·765	1·194	1·390	1·396	265·00
23	128·07199	1·59023	0·415	0·423	0·620	0·627	266·00
24	331·56098	2·59023	1·415	1·423	1·620	1·627	267·00
25	175·04997	0·06477	0·065	0·653	0·851	0·858	268·00
26	18·53897	1·06477	1·065	1·653	0·082	0·089	269·00
27	222·02796	2·06477	2·065	0·882	1·082	1·089	270·00
28	65·51695	3·06477	0·714	0·112	0·313	0·319	271·00
29	269·00594	0·53931	1·714	1·112	1·313	1·319	272·00
30	112·49493	1·53931	0·364	0·341	0·544	0·550	273·00
October 1	315·98393	2·53931	1·364	1·341	1·544	1·550	274·00
2	159·47292	0·01384	0·014	0·571	0·774	0·781	275·00
3	2·96191	1·01384	1·014	1·571	0·005	0·012	276·00
4	206·45090	2·01384	2·014	0·800	1·005	1·012	277·00
5	49·93990	3·01384	0·664	0·030	0·236	0·243	278·00
6	253·42889	0·48838	1·664	1·030	1·236	1·243	279·00
7	96·91788	1·48838	0·313	0·259	0·467	0·474	280·00
8	300·40687	2·48838	1·313	1·259	1·467	1·474	281·00
9	143·89587	3·48838	2·313	0·489	0·698	0·705	282·00
10	347·38486	0·96291	0·963	1·489	1·698	1·705	283·00
11	190·87385	1·96291	1·963	0·718	0·928	0·935	284·00
12	34·36284	2·96291	0·613	1·718	0·159	0·166	285·00
13	237·85184	0·43745	1·613	0·948	1·159	1·166	286·00
14	81·34083	1·43745	0·262	0·177	0·390	0·397	287·00
15	284·82982	2·43745	1·262	1·177	1·390	1·397	288·00
16	128·31881	3·43745	2·262	0·407	0·621	0·628	289·00
17	331·80781	0·91199	0·912	1·407	1·621	1·628	290·00
18	175·29680	1·91199	1·912	0·636	0·852	0·859	291·00
19	18·78579	2·91199	0·562	1·636	0·082	0·090	292·00
20	222·27478	0·38652	1·562	0·866	1·082	1·090	293·00
21	65·76378	1·38652	0·211	0·095	0·313	0·320	294·00
22	269·25277	2·38652	1·211	1·095	1·313	1·320	295·00
23	112·74176	3·38652	2·211	0·324	0·544	0·551	296·00
24	316·23075	0·86106	0·861	1·324	1·544	1·551	297·00
25	159·71975	1·86106	1·861	0·554	0·775	0·782	298·00
26	3·20874	2·86106	0·511	1·554	0·006	0·013	299·00
27	206·69773	0·33560	1·511	0·783	1·006	1·013	300·00
28	50·18672	1·33560	0·160	0·013	0·236	0·244	301·00
29	253·67572	2·33560	1·160	1·013	1·236	1·244	302·00
30	97·16471	3·33560	2·160	0·242	0·467	0·475	303·00
31	300·65370	0·81013	0·810	1·242	1·467	1·475	304·00
November 1	144·14269	1·81013	1·810	0·472	0·698	0·706	305·00
2	347·63169	2·81013	0·460	1·472	1·698	1·706	306·00
3	191·12068	0·28467	1·460	0·701	0·929	0·936	307·00
4	34·60967	1·28467	0·110	1·701	0·160	0·167	308·00
5	238·09866	2·28467	1·110	0·931	1·160	1·167	309·00
6	81·58765	3·28467	2·110	0·160	0·390	0·398	310·00
7	285·07665	0·75921	0·759	1·160	1·390	1·398	311·00
8	128·56564	1·75921	1·759	0·390	0·621	0·629	312·00
9	332·05463	2·75921	0·409	1·390	1·621	1·629	313·00
10	175·54362	0·23374	1·409	0·619	0·852	0·860	314·00

In Leap Year diminish the date in Columns 1, 9, by 1 day after Feb. 28.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

9				3	4	5	6
Day	**J**	**K**	**L**	**M**	**N, O**	**P**	**Q**
			d		d	d	l
September 20	0 721	1 16761	1 340	1 1	1 18	0 370	0 30
21	0 723	0 39847	0 57	0 441	41	0 485	0 42
22	0 7 6	1 39847	1 572	1 441	1 41	0 601	0 54
23	0 729	0 6 933	0 804	0 672	0 64	0 717	0 65
24	0 73	1 6 933	0 36	1 672	1 64	0 83	0 77
25	0 734	0 86019	1 036	903	0 87	0 064	0
26	0 737	0 09105	0 268	134	0 10	0 180	11
27	0 740	1 09105	1 68	1 134	1 10	0 95	0 23
28	0 742	3219	0 500	0 365	0 33	411	0 34
29	0 745	1 3219	1 500	1 365	1 33	0 527	0 46
30	0 748	0 55278	0 73	0 597	0 56	0 64	0 57
October 1	0 751	1 55278	1 732	1 597	1 56	0 758	0 69
2	0 753	0 78364	0 964	828	0 79	0 874	0 81
3	0 756	01450	0 196	0 59	0	0 105	0 04
4	0 759	1 1450	1 196	1 059	1 02	0 21	0 15
5	0 762	0 24537	0 428	0 90	0 25	0 337	0 27
6	0 764	1 4537	1 4 8	1 290	1 5	0 453	0 38
7	0 767	0 476 3	0 660	0 521	0 49	0 568	0 50
8	0 770	1 47623	1 660	1 5 1	1 49	0 684	0 61
9	0 773	0 70709	0 892	0 752	0 72	0 80	0 73
10	0 775	1 70709	0 124	1 75	1 72	0 031	0 85
11	0 778	0 93795	1 124	0 983	0 95	0 147	0 08
12	0 781	0 16881	356	0 215	0 18	0 263	0 19
13	0 784	1 16881	1 356	1 15	1 18	0 378	0 31
14	0 786	0 39968	0 588	0 446	0 41	0 494	0 42
15	0 789	1 39968	1 588	1 446	1 41	0 610	0 54
16	0 792	0 63054	0 8 0	0 677	0 64	0 726	0 65
17	0 795	1 63054	0 052	1 677	1 64	0 841	0 77
18	0 797	0 86140	1 052	0 9 8	0 87	0 73	0 00
19	80	0 09 26	0 284	0 139	0 10	0 188	0 12
20	0 803	1 09226	1 284	1 139	1 10	0 304	0 23
21	0 805	0 3 313	0 516	0 370	0 33	0 420	0 35
22	0 808	1 3 313	1 516	1 370	1 33	0 536	0 46
23	811	0 55399	0 749	0 6 2	0 56	651	0 58
24	814	1 55399	1 749	1 60	1 56	0 767	0 69
25	0 816	78485	0 981	0 833	0 80	0 883	0 81
26	0 819	0 1571	0 213	0 064	0 03	0 114	0 4
27	0 8	1 1571	1 13	1 064	1 03	0 230	0 16
28	8 5	0 24657	0 445	0 95	0 26	0 346	0 27
29	8 7	1 24657	1 445	1 95	1 6	0 461	0 39
30	0 830	0 47744	677	0 526	0 49	0 577	0 50
31	0 833	1 47744	1 677	1 526	1 49	0 693	0 62
November 1	0 836	70830	0 909	0 757	0 7	809	73
2	0 838	1 7 830	0 141	1 757	1 7	0 040	0 85
3	0 841	0 93916	1 141	0 988	0 95	0 156	0 08
4	0 844	0 17002	0 373	2 0	0 18	0 271	0 19
5	0 847	1 17002	1 373	1 20	1 18	0 387	0 31
6	0 849	0 40 88	0 605	0 451	0 41	0 503	43
7	852	1 4 088	1 605	1 451	1 41	0 619	0 54
8	855	0 63175	0 837	0 68	0 64	0 734	0 66
9	0 858	1 63175	0 069	1 68	1 64	0 850	0 77
10	0 860	0 86261	1 069	0 913	0 87	0 081	0 00

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8
Day	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F—I**
	°	d	d	d	d	d	d
November 11	19·03262	1·23374	0·059	1·619	0·083	0·091	315·00
12	222·52161	2·23374	1·059	0·849	1·083	1·091	316·00
13	66·01060	3·23374	2·059	0·078	0·314	0·321	317·00
14	269·49959	0·70828	0·708	1·078	1·314	1·321	318·00
15	112·98859	1·70828	1·708	0·308	0·544	0·552	319·00
16	316·47758	2·70828	0·358	1·308	1·544	1·552	320·00
17	159·96657	0·18282	1·358	0·537	0·775	0·782	321·00
18	3·45556	1·18282	0·008	1·537	0·006	0·014	322·00
19	206·94456	2·18282	1·008	0·767	1·006	1·014	323·00
20	50·43355	3·18282	2·008	1·767	0·237	0·245	324·00
21	253·92254	0·65735	0·657	0·996	1·237	1·245	325·00
22	97·41153	1·65735	1·657	0·226	0·468	0·476	326·00
23	300·90053	2·65735	0·307	1·226	1·468	1·476	327·00
24	144·38952	0·13189	1·307	0·455	0·698	0·707	328·00
25	347·87851	1·13189	2·307	1·455	1·698	1·707	329·00
26	191·36750	2·13189	0·957	0·685	0·929	0·937	330·00
27	34·85650	3·13189	1·957	1·685	0·160	0·168	331·00
28	238·34549	0·60642	0·606	0·914	1·160	1·168	332·00
29	81·83448	1·60642	1·606	0·144	0·391	0·398	333·00
30	285·32347	2·60642	0·256	1·144	1·391	1·398	334·00
December 1	128·81247	0·08096	1·256	0·373	0·622	0·630	335·00
2	332·30146	1·08096	2·256	1·373	1·622	1·630	336·00
3	175·79045	2·08096	0·906	0·603	0·852	0·861	337·00
4	19·27944	3·08096	1·906	1·603	0·083	0·092	338·00
5	222·76844	0·55550	0·556	0·832	1·083	1·092	339·00
6	66·25743	1·55550	1·556	0·062	0·314	0·322	340·00
7	269·74642	2·55550	0·205	1·062	1·314	1·322	341·00
8	113·23541	0·03003	1·205	0·291	0·545	0·553	342·00
9	316·72441	1·03003	2·205	1·291	1·545	1·553	343·00
10	160·21340	2·03003	0·855	0·521	0·776	0·784	344·00
11	3·70239	3·03003	1·855	1·521	0·006	0·015	345·00
12	207·19138	0·50457	0·505	0·750	1·006	1·015	346·00
13	50·68037	1·50457	1·505	1·750	0·237	0·246	347·00
14	254·16937	2·50457	0·154	0·980	1·237	1·246	348·00
15	97·65836	3·50457	1·154	0·209	0·468	0·477	349·00
16	301·14735	0·97911	2·154	1·209	1·468	1·477	350·00
17	144·63634	1·97911	0·804	0·439	0·699	0·708	351·00
18	348·12534	2·97911	1·804	1·439	1·699	1·708	352·00
19	191·61433	0·45364	0·454	0·668	0·930	0·938	353·00
20	35·10332	1·45364	1·454	1·668	0·160	0·169	354·00
21	238·59231	2·45364	0·103	0·898	1·160	1·169	355·00
22	82·08131	3·45364	1·103	0·127	0·391	0·400	356·00
23	285·57030	0·92818	2·103	1·127	1·391	1·400	357·00
24	129·05929	1·92818	0·753	0·357	0·622	0·631	358·00
25	332·54828	2·92818	1·753	1·357	1·622	1·631	359·00
26	176·03728	0·40272	0·403	0·586	0·853	0·862	360·00
27	19·52627	1·40272	1·403	1·586	0·084	0·093	361·00
28	223·01526	2·40272	0·052	0·816	1·084	1·093	362·00
29	66·50425	3·40272	1·052	0·045	0·314	0·323	363·00
30	269·99325	0·87725	2·052	1·045	1·314	1·323	364·00
31	113·48224	1·87725	0·702	0·275	0·545	0·554	365·00
32	316·97123	2·87725	1·702	1·275	1·545	1·554	366·00

In Leap Year diminish the date in Columns 1, 9, by 1 day after Feb. 28.

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

9				3	4	5	6
Day	J	K	L	M	N O	P	Q
	y	l				d	
November 11	0 863	09347	0 301	0 144	0 10	0 197	0 1
12	0 866	1 09347	1 301	1 144	1 10	0 313	0 23
13	868	0 3 433	0 533	375	34	0 4 9	0 35
14	0 871	1 3 433	1 533	1 375	1 34	0 544	0 47
15	0 874	0 555 0	0 765	0 6 6	57	0 660	0 58
16	0 877	1 555 0	1 765	1 606	1 57	0 776	0 70
17	879	0 78606	0 997	0 838	0 80	0 7	0 81
18	882	0 01692	0 9	069	0 03	1 3	0 4
19	0 885	1 0169	1 9	1 069	1 3	0 39	16
20	0 888	4778	461	0 300	0 6	0 354	0 7
21	0 890	1 4778	1 461	1 300	1 6	0 470	0 39
22	0 893	0 47864	0 693	0 531	0 49	0 586	0 50
23	0 896	47864	1 693	1 531	1 49	0 702	0 62
24	899	0 70951	0 9 5	0 762	0 7	0 817	0 74
25	9 1	1 70951	0 157	1 76	1 72	0 049	85
26	0 904	0 94037	1 157	0 993	0 95	0 164	0 08
27	0 907	171 3	389	224	0 18	0 280	0 2
28	0 910	1 171 3	1 389	1 2 4	1 18	396	0 31
29	0 91	0 4 2 9	0 6 1	0 456	0 41	0 51	0 43
30	0 915	1 40209	1 621	1 456	1 41	0 627	54
December 1	0 918	63296	0 853	0 687	0 64	0 743	66
2	0 921	1 63 96	85	1 687	1 64	0 859	0 78
3	0 9 3	0 8638	1 85	0 918	0 88	0 9	0 01
4	0 9 6	0 09468	0 317	149	11	6	0 13
5	9 9	9468	1 317	1 149	1 11	3 2	0 24
6	0 93	0 3 554	0 549	0 380	0 34	0 437	0 35
7	0 934	1 3 554	1 549	1 38	1 34	553	0 47
8	0 937	0 55640	0 781	0 611	0 57	0 669	58
9	0 940	1 5564	0 13	1 611	1 57	785	0 70
10	0 94	0 787 7	1 013	0 84	0 80	0 016	0 81
11	0 945	0 01813	0 45	0 74	0 03	0 132	0 05
12	0 948	1 1813	1 245	1 074	1 3	0 47	0 17
13	0 951	4899	477	0 305	0 26	0 363	0 28
14	953	1 4899	1 477	1 3 5	1 6	0 479	0 39
15	956	0 47985	0 709	0 536	49	0 595	0 51
16	0 959	1 47985	1 7 9	1 536	1 49	0 710	0 62
17	0 96	0 7107	0 941	0 767	0 7	0 8 6	74
18	964	1 71 72	173	1 767	1 72	0 058	0 85
19	0 967	94158	1 173	998	0 95	0 173	0 09
20	0 970	0 17244	0 4 5	0 29	0 18	89	0 0
21	0 973	1 17 44	1 4 5	1 9	1 18	0 405	0 32
22	0 975	0 40330	637	0 461	0 4	0 5 0	0 43
23	978	1 40330	1 637	1 461	1 42	636	0 55
24	0 981	0 63416	0 869	0 692	0 65	0 75	0 66
25	0 984	1 63416	0 101	1 692	1 65	0 868	0 78
26	0 986	86503	1 101	923	0 88	0 099	0 01
27	989	09589	0 334	0 154	0 11	15	0 12
28	0 99	1 09589	1 334	1 154	1 11	0 330	0 24
29	0 995	0 3 675	0 566	0 385	0 34	0 446	0 36
30	0 997	1 3 675	1 566	1 385	1 34	0 56	47
31	1 000	0 55762	0 798	0 616	0 57	0 678	0 59
32	1 003	1 5576	0 030	1 616	1 57	0 793	70

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XI **Motion of Mean Longitude for Parts of a Day**

1	2	1	2
Days	Mean Long.	Days	Mean Long.
d	°	d	°
0·01	2·03489	**0·51**	103·77939
·02	4·06978	**·52**	105·81428
·03	6·10467	**·53**	107·84917
·04	8·13956	**·54**	109·88406
·05	10·17445	**·55**	111·91895
0·06	12·20934	**0·56**	113·95384
·07	14·24423	**·57**	115·98873
·08	16·27912	**·58**	118·02362
·09	18·31401	**·59**	120·05851
·10	20·34890	**·60**	122·09340
0·11	22·38379	**0·61**	124·12829
·12	24·41868	**·62**	126·16318
·13	26·45357	**·63**	128·19807
·14	28·48846	**·64**	130·23296
·15	30·52335	**·65**	132·26785
0·16	32·55824	**0·66**	134·30274
·17	34·59313	**·67**	136·33762
·18	36·62802	**·68**	138·37251
·19	38·66291	**·69**	140·40740
·20	40·69780	**·70**	142·44229
0·21	42·73269	**0·71**	144·47718
·22	44·76758	**·72**	146·51207
·23	46·80247	**·73**	148·54696
·24	48·83736	**·74**	150·58185
·25	50·87225	**·75**	152·61674
0·26	52·90714	**0·76**	154·65163
·27	54·94203	**·77**	156·68652
·28	56·97692	**·78**	158·72141
·29	59·01181	**·79**	160·75630
·30	61·04670	**·80**	162·79119
0·31	63·08159	**0·81**	164·82608
·32	65·11648	**·82**	166·86097
·33	67·15137	**·83**	168·89586
·34	69·18626	**·84**	170·93075
·35	71·22115	**·85**	172·96564
0·36	73·25604	**0·86**	175·00053
·37	75·29093	**·87**	177·03542
·38	77·32582	**·88**	179·07031
·39	79·36071	**·89**	181·10520
·40	81·39560	**·90**	183·14009
0·41	83·43049	**0·91**	185·17498
·42	85·46538	**·92**	187·20987
·43	87·50027	**·93**	189·24476
·44	89·53516	**·94**	191·27965
·45	91·57005	**·95**	193·31454
0·46	93·60494	**0·96**	195·34943
·47	95·63983	**·97**	197·38432
·48	97·67472	**·98**	199·41921
·49	99·70961	**·99**	201·45410
·50	101·74450	**1·00**	203·48899

3	4	3	4
Days	Mean Long.	Days	Mean Long.
d	°	d	°
0·0001	0·02035	**0·0051**	1·03779
2	·04070	**52**	1·05814
3	·06105	**53**	1·07849
4	·08140	**54**	1·09884
5	·10174	**55**	1·11919
0·0006	0·12209	**0·0056**	1·13954
7	·14244	**57**	1·15989
8	·16279	**58**	1·18024
9	·18314	**59**	1·20059
10	·20349	**60**	1·22093
0·0011	0·22384	**0·0061**	1·24128
12	·24419	**62**	1·26163
13	·26454	**63**	1·28198
14	·28488	**64**	1·30233
15	·30523	**65**	1·32268
0·0016	0·32558	**0·0066**	1·34303
17	·34593	**67**	1·36338
18	·36628	**68**	1·38373
19	·38663	**69**	1·40407
20	·40698	**70**	1·42442
0·0021	0·42733	**0·0071**	1·44477
22	·44768	**72**	1·46512
23	·46802	**73**	1·48547
24	·48837	**74**	1·50582
25	·50872	**75**	1·52617
0·0026	0·52907	**0·0076**	1·54652
27	·54942	**77**	1·56687
28	·56977	**78**	1·58721
29	·59012	**79**	1·60756
30	·61047	**80**	1·62791
0·0031	0·63082	**0·0081**	1·64826
32	·65116	**82**	1·66861
33	·67151	**83**	1·68896
34	·69186	**84**	1·70931
35	·71221	**85**	1·72966
0·0036	0·73256	**0·0086**	1·75001
37	·75291	**87**	1·77035
38	·77326	**88**	1·79070
39	·79361	**89**	1·81105
40	·81396	**90**	1·83140
0·0041	0·83430	**0·0091**	1·85175
42	·85465	**92**	1·87210
43	·87500	**93**	1·89245
44	·89535	**94**	1·91280
45	·91570	**95**	1·93315
0·0046	0·93605	**0·0096**	1·95349
47	·95640	**97**	1·97384
48	·97675	**98**	1·99419
49	0·99710	**99**	2·01454
50	1·01745	**0·0100**	2·03489

For the Arguments A—Q (omitting J), the fraction of a day must be added to the sum of the entries taken from Tables IX, X.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XII Equation of Longitude Argument A

A	Lq a tio	Δ	½ Δ	A	Lqua tion	Δ	½ Δ	A	Eq ia tion	Δ	½ Δ²	A	Eq ia tio	Δ	½ Δ²
		3	4			3	4			3	4			3	4
0 00	48000	+1694		0 50	93 88	− 375	−31	1 00	8 55	−15 1	+1	1 50	09857	+ 998	+24
0 01	49694	1694	− 1	0 51	93383	434	9	1 01	26746	1495	14	1 51	10878	1046	5
0 02	51387	1691	3	0 52	929 1	49	8	1 02	5 65	1467	14	1 52	11948	1 93	23
0 03	53 75	1684	4	0 53	9 4 4	546	9	1 03	381	1438	16	1 53	13063	1138	3
0 04	54755	1676	4	0 54	918 9	6 3	28	1 04	2 390	1407	15	1 54	4 3	1182	
0 05	564 7	1666	6	0 55	91198	658	7	1 05	0998	1375	18	1 55	15426	1 4	1
0 06	58088	+1654	− 7	0 56	9 513	− 71	7	1 06	19641	−1339	+18	1 56	16671	+1 64	+19
0 07	59735	1641	7	0 57	89775	765	26	1 07	18320	13 4	18	1 57	17954	1303	20
0 08	61369	16 4	10	0 58	88984	817	26	1 08	17034	1 66	2	1 58	19 77	134	19
0 09	6 983	1605	9	0 59	88141	870	27	1 09	15788	1 26	1	1 59	0637	1378	18
0 10	64579	1585	11	0 60	87244	9 1	24	1 10	14583	1185	20	1 60	2 3	1411	16
0 11	66153	+ 156	−13	0 61	86300	− 968	−24	1 11	13418	−1144	+2	1 61	23459	+1443	+16
0 12	677	1537	13	0 62	853 8	1016	4	1 12	1 96	1 99	23	1 62	4918	1474	15
0 13	69 6	151	14	0 63	84 68	106		1 13	11 20	1054	23	1 63	6407	1503	14
0 14	707 2	148	15	0 64	83184	1107	3	1 14	1 189	1008	4	1 64	7923	15 9	13
0 15	7 189	1451	17	0 65	8 055	1151	22	1 15	09 05	960	5	1 65	9465	1554	1
0 16	736 3	+1418	−17	0 66	80882	1193	−20	1 16	8 70	− 911	+ 5	1 66	31031	+1577	+11
0 17	750 4	1384	18	0 67	79670	1 33	1	1 17	07384	860	26	1 67	3 618	1597	10
0 18	76390	1347	19	0 68	78416	1 74		1 18	0655	809	25	1 68	34225	1616	9
0 19	77718	13 9	19	0 69	771 3	1311	18	1 19	5767	757	27	1 69	35850	1633	8
0 20	790 8	1 7		0 70	75795	1346	18	1 20	05 37	704	27	1 70	37490	1647	7
0 21	80 58	+1 9	− 1	0 71	74431	−1381	−16	1 21	04360	− 649	+29	1 71	39143	+1659	+ 6
0 22	81466	1 86	23	0 72	73033	1414	16	1 22	03740	594	7	1 72	4 808	167	5
0 23	8 6 9	1141		0 73	71604	1444	15	1 23	03173	539	9	1 73	4248	1678	4
0 24	83748	1095	4	0 74	70146	147	14	1 24	663	48	9	1 74	44163	1683	2
0 25	848 9	1048	4	0 75	68661	1499	14	1 25	10	4 4	30	1 75	45848	1687	
0 26	85843	+1	−24	0 76	67148	−15 5	−1	1 26	01816	− 366	+29	1 76	47537	+1690	+ 1
0 27	86819	950	26	0 77	6561	1548	1	1 27	01479	307	30	1 77	492 8	1690	− 2
0 28	87743	899	5	0 78	64053	1569	10	1 28	01 02	49	29	1 78	50916	1686	
0 29	88617	848	7	0 79	62475	1587	9	1 29	0098	191	30	1 79	5 600	168	3
0 30	89438	795	7	0 80	60879	1605	9	1 30	008 1	131	30	1 80	54279	1675	5
0 31	9 06	+ 741	−28	0 81	59 65	−16 1	− 7	1 31	007 0	− 71	+30	1 81	55949	+1666	− 5
0 32	9 919	686	28	0 82	57637	1634	6	1 32	0679	− 12	29	1 82	57609	1655	6
0 33	9 577	630	9	0 83	55997	1645	5	1 33	00696	+ 48	31	1 83	59 58	1641	8
0 34	9 178	573	9	0 84	54347	1654	4	1 34	0775	108	9	1 84	60891	16 5	8
0 35	9 7	515	9	0 85	5 69	1661	4	1 35	0091	167	3	1 85	6 508	1608	9
0 36	93 8	+ 457	− 9	0 86	510 6	−1667	− 3	1 36	1109	+ 7	+30	1 86	64107	+1588	−11
0 37	93636	399	9	0 87	49357	167	− 1	1 37	01365	86	3	1 87	65684	1567	11
0 38	94006	34	3	0 88	47687	167		1 38	01680	345	30	1 88	67 40	1544	13
0 39	94316	81	9	0 89	46017	1669	+	1 39	02 55	403	8	1 89	68771	1518	14
0 40	94568	22	31	0 90	44350	1665		1 40	02486	461	30	1 90	7 275	1489	15
0 41	94759	+ 161	−3	0 91	4 687	−1660	+ 3	1 41	0 976	+ 519	+ 9	1 91	71749	+1460	−15
0 42	94890	10	30	0 92	41030	165	5	1 42	03523	575	8	1 92	73194	14 9	16
0 43	9496	+ 42	30	0 93	39383	1641	6	1 43	041 6	631	8	1 93	746 7	1396	17
0 44	94974	− 9	31	0 94	37746	1630	5	1 44	04784	687	8	1 94	75986	1361	18
0 45	949 5	79	3	0 95	361 1	1618	7	1 45	05499	74	27	1 95	77329	1324	19
0 46	94816	− 139	−30	0 96	34510	−1603	+ 9	1 46	6267	+ 794	+26	1 96	78634	+1286	−20
0 47	94647	199	30	0 97	3 916	1585	10	1 47	07087	846	26	1 97	799 0	1 46	0
0 48	94419	258	3	0 98	31341	1564	11	1 48	07959	898	6	1 98	811 6	1 05	21
0 49	9413	316	9	0 99	9788	1543	10	1 49	08883	949	25	1 99	8 310	1162	
0 50	93788	− 375	−31	1 00	8 55	−15 1	+1	1 50	09857	+ 998	+24	2 00	8345	+1117	− 3

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SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XII *continued* **Equation of Longitude** **Argument A**

1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
A	Equation	Δ	$\frac{1}{2}\Delta^2$	**A**	Equation	Δ	$\frac{1}{2}\Delta^2$	**A**	Equation	Δ	$\frac{1}{2}\Delta^2$	**A**	Equation	Δ	$\frac{1}{2}\Delta^2$
d	°			d	°			d	°			d	°		
2·00	·83450	+1117	−23	**2·50**	·71530	−1450	−13	**3·00**	·03355	−522	+29	**3·50**	·43691	+1687	+3
2·01	·84544	1071	23	**2·51**	·70067	1478	15	**3·01**	·02862	464	29	**3·51**	·45380	1692	+3
2·02	·85592	1024	24	**2·52**	·68574	1506	13	**3·02**	·02427	406	29	**3·52**	·47075	1695	−1
2·03	·86592	976	24	**2·53**	·67055	1531	12	**3·03**	·02050	348	30	**3·53**	·48769	1694	1
2·04	·87544	926	26	**2·54**	·65512	1554	11	**3·04**	·01732	289	29	**3·54**	·50462	1692	1
2·05	·88444	875	26	**2·55**	·63948	1574	10	**3·05**	·01472	231	30	**3·55**	·52153	1688	3
2·06	·89293	+823	−27	**2·56**	·62365	−1593	−10	**3·06**	·01271	−172	+30	**3·56**	·53838	+1682	−4
2·07	·90089	770	26	**2·57**	·60763	1610	8	**3·07**	·01129	112	30	**3·57**	·55516	1673	6
2·08	·90833	716	28	**2·58**	·59146	1624	7	**3·08**	·01047	−52	31	**3·58**	·57183	1661	7
2·09	·91521	661	28	**2·59**	·57515	1637	6	**3·09**	·01026	+9	30	**3·59**	·58837	1648	6
2·10	·92154	606	28	**2·60**	·55873	1648	6	**3·10**	·01065	69	30	**3·60**	·60479	1634	9
2·11	·92732	+550	−29	**2·61**	·54220	−1658	−5	**3·11**	·01164	+128	+29	**3·61**	·62104	+1615	−10
2·12	·93253	493	28	**2·62**	·52558	1664	2	**3·12**	·01321	188	31	**3·62**	·63709	1596	9
2·13	·93718	436	30	**2·63**	·50893	1666	1	**3·13**	·01539	248	30	**3·63**	·65296	1576	12
2·14	·94124	377	30	**2·64**	·49226	1670	−3	**3·14**	·01817	308	30	**3·64**	·66860	1551	13
2·15	·94471	318	30	**2·65**	·47554	1671	+1	**3·15**	·02154	367	30	**3·65**	·68398	1525	14
2·16	·94759	+259	−30	**2·66**	·45884	−1669	+2	**3·16**	·02551	+426	+29	**3·66**	·69909	+1497	−14
2·17	·94988	200	29	**2·67**	·44217	1664	3	**3·17**	·03005	484	30	**3·67**	·71392	1468	15
2·18	·95159	140	31	**2·68**	·42556	1658	3	**3·18**	·03519	542	28	**3·68**	·72845	1436	17
2·19	·95268	81	29	**2·69**	·40901	1650	5	**3·19**	·04089	599	29	**3·69**	·74264	1402	17
2·20	·95320	+21	31	**2·70**	·39256	1640	6	**3·20**	·04716	655	28	**3·70**	·75649	1367	19
2·21	·95310	−39	−29	**2·71**	·37622	−1628	+7	**3·21**	·05398	+710	+28	**3·71**	·76997	+1330	−18
2·22	·95243	98	31	**2·72**	·36001	1614	7	**3·22**	·06136	765	27	**3·72**	·78309	1292	20
2·23	·95115	158	30	**2·73**	·34394	1598	9	**3·23**	·06928	819	27	**3·73**	·79581	1251	21
2·24	·94927	217	29	**2·74**	·32806	1579	9	**3·24**	·07774	871	25	**3·74**	·80811	1209	22
2·25	·94681	276	30	**2·75**	·31236	1560	11	**3·25**	·08670	922	26	**3·75**	·81998	1165	22
2·26	·94375	−335	−29	**2·76**	·29687	−1537	+12	**3·26**	·09617	+972	+25	**3·76**	·83141	+1121	−23
2·27	·94012	392	29	**2·77**	·28162	1513	12	**3·27**	·10614	1022	25	**3·77**	·84239	1075	24
2·28	·93591	450	29	**2·78**	·26661	1487	14	**3·28**	·11661	1070	23	**3·78**	·85290	1027	24
2·29	·93112	507	28	**2·79**	·25188	1459	14	**3·29**	·12754	1117	24	**3·79**	·86293	978	25
2·30	·92577	563	28	**2·80**	·23743	1430	16	**3·30**	·13894	1162	22	**3·80**	·87246	928	26
2·31	·91986	−619	−28	**2·81**	·22329	−1399	+16	**3·31**	·15077	+1205	+22	**3·81**	·88148	+876	−26
2·32	·91340	674	28	**2·82**	·20946	1366	18	**3·32**	·16304	1247	20	**3·82**	·88998	823	27
2·33	·90639	728	27	**2·83**	·19598	1330	19	**3·33**	·17571	1288	21	**3·83**	·89794	770	27
2·34	·89885	781	27	**2·84**	·18287	1294	18	**3·34**	·18879	1328	20	**3·84**	·90537	716	28
2·35	·89078	833	26	**2·85**	·17011	1256	20	**3·35**	·20226	1365	18	**3·85**	·91225	660	28
2·36	·88220	−883	−25	**2·86**	·15775	−1216	+21	**3·36**	·21608	+1399	+17	**3·86**	·91857	+604	−29
2·37	·87312	933	25	**2·87**	·14580	1174	21	**3·37**	·23024	1433	17	**3·87**	·92432	547	28
2·38	·86355	981	24	**2·88**	·13427	1131	22	**3·38**	·24474	1465	15	**3·88**	·92951	489	30
2·39	·85350	1029	24	**2·89**	·12318	1087	22	**3·39**	·25954	1494	14	**3·89**	·93410	430	29
2·40	·84297	1075	22	**2·90**	·11253	1042	24	**3·40**	·27462	1522	14	**3·90**	·93811	372	30
2·41	·83200	−1119	−22	**2·91**	·10235	−995	+24	**3·41**	·28997	+1548	+13	**3·91**	·94153	+313	−29
2·42	·82060	1162	22	**2·92**	·09264	947	25	**3·42**	·30558	1573	12	**3·92**	·94437	254	30
2·43	·80876	1205	21	**2·93**	·08342	896	26	**3·43**	·32142	1594	10	**3·93**	·94661	194	30
2·44	·79651	1245	20	**2·94**	·07472	846	25	**3·44**	·33746	1614	10	**3·94**	·94825	134	30
2·45	·78387	1284	20	**2·95**	·06651	794	27	**3·45**	·35370	1632	8	**3·95**	·94929	74	30
2·46	·77084	−1321	−18	**2·96**	·05884	−741	+26	**3·46**	·37009	+1647	+8	**3·96**	·94973	+14	−30
2·47	·75746	1356	18	**2·97**	·05169	688	27	**3·47**	·38664	1661	6	**3·97**	·94957	−46	30
2·48	·74373	1390	17	**2·98**	·04508	632	29	**3·48**	·40331	1672	5	**3·98**	·94881	106	30
2·49	·72967	1422	16	**2·99**	·03905	577	27	**3·49**	·42007	1680	4	**3·99**	·94746	163	28
2·50	·71530	−1450	−13	**3·00**	·03355	−522	+29	**3·50**	·43691	+1687	+3	**4·00**	·94555	−220	−29

Added Constant: 0°·48000.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XIII

B	Equ tion	3 Δ 0d 1
0 00	0 0300	+ 4 0
05	3 0	3 5
10	336	2 7
15	347	+ 1 0
20	35	− 3
25	344	0
0 30	0 0329	− 4 0
35	3 5	5 5
40	273	7 3
45	235	7 5
50	196	8 0
0 55	0 00156	− 8 0
60	119	6 8
65	88	5 5
70	65	4 0
75	51	− 1 5
0 80	0 00048	+ 0 3
85	55	2 5
90	73	4 3
95	1 0	6 0
1 00	135	7 7
1 05	0 178	+ 9 0
10	4	9 8
15	74	10 5
20	3 5	1 3
25	375	1 0
1 30	0 004	+ 9
35	464	8 0
40	500	6 3
45	5 7	4 5
50	545	5
1 55	0 0055	+ 5
60	549	− 1 8
65	535	3 5
70	51	5 3
75	481	7 0
1 80	0 0 444	− 7 8
85	405	8 0
90	365	8 0
95	3 8	7 0
2 00	96	5 7
2 05	00 7	− 4 0
10	56	− 2 3
15	250	0 0
20	253	+ 1 5
25	64	3 0
2 30	0 00280	+ 3 8
35	300	4 0
40	319	3 5
45	336	3 0
2 50	0 00347	+ 1 3

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Equations of Longitude

XIV

C	Equat o	3 Δ 0d 0	C	Equ tion	3 Δ 0 01
d 0 00	0 00600	+ 18 9	1 00	0 00389	− 17 4
02	638	18 9	02	355	16 8
04	675	18 7	04	3	16 1
06	713	18 5	06	9	15 4
08	749	18 1	08	6	14 5
10	785	17 7	10	32	13 7
0 12	0 008	+ 17	1 12	002 6	− 1 8
14	854	16 6	14	181	11 7
16	886	15 9	16	159	10 6
18	918	15	18	139	9 5
20	947	14 3	20	1 1	8 3
0 22	0 00975	+ 13 4	1 22	0 00106	− 7 1
24	1001	1 5	24	93	5 8
26	1025	11 4	26	83	4 5
28	1 46	10 3	28	75	3 2
30	1066	9 2	30	70	1 9
0 32	0 01083	+ 8 0	1 32	00068	0 5
34	1097	6 7	34	69	+ 0 8
36	11 9	5 5	36	72	2
38	1119	4	38	78	3 5
40	1126	9	40	86	4 8
0 42	0 01130	+ 1 5	1 42	0 00 97	+ 6 1
44	113	+	44	110	7 3
46	1131	− 1 2	46	1 6	8 6
48	11 7	5	48	144	9 7
50	11 1	3 8	50	165	10 9
0 52	0 01112	− 5 1	1 52	0 0188	+ 11 9
54	1101	6 4	54	21	1 9
56	1087	7 7	56	39	13 9
58	1070	8 9	58	268	14 7
60	1051	10 0	60	98	15 5
0 62	0 01030	− 11 1	1 62	0 00330	+ 16 3
64	1007	12 2	64	363	16 9
66	981	13 2	66	398	17 5
68	954	14 1	68	43	17 9
70	9 5	15 0	70	468	18 3
0 72	0 894	− 15 7	1 72	0 00506	+ 18 6
74	86	16 4	74	543	18 8
76	8 9	17 1	76	580	18 9
78	794	17 6	78	618	18 9
80	758	18 0	80	656	18 8
0 82	0 00722	− 18 4	1 82	0 00693	+ 18 6
84	685	18 7	84	730	18 3
86	647	18 8	86	767	18 0
88	6 9	18 9	88	80	17 5
90	57	18 9	90	836	16 9
0 92	0 00534	− 18 7	1 92	0087	+ 16 3
94	497	18 5	94	902	15 6
96	46	18	96	932	14 8
98	424	17 8	98	961	13 9
1 00	0 00389	− 17 4	2 00	0 00987	+ 13 0

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SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

Equations of Longitude

XV

1	2	3	1	2	3
D	Equation	Δ 0ᵈ·01	**D**	Equation	Δ 0ᵈ·01
d	°		d	°	
0·00	0·00500	+15,1	**1·00**	0·00330	−13,9
·02	530	15,1	**·02**	303	13,4
·04	560	14,9	**·04**	276	12,9
·06	590	14,8	**·06**	251	12,3
·08	619	14,5	**·08**	227	11,6
·10	648	14,1	**·10**	205	10,9
0·12	0·00676	+13,7	**1·12**	0·00184	−10,1
·14	703	13,3	**·14**	164	9,3
·16	729	12,7	**·16**	147	8,5
·18	754	12,1	**·18**	131	7,5
·20	777	11,5	**·20**	117	6,6
0·22	0·00799	+10,7	**1·22**	0·00104	− 5,6
·24	820	10,0	**·24**	94	4,6
·26	839	9,1	**·26**	86	3,6
·28	857	8,2	**·28**	80	2,5
·30	872	7,3	**·30**	76	1,5
0·32	0·00886	+ 6,4	**1·32**	0·00074	− 0,4
·34	898	5,4	**·34**	74	+ 0,7
·36	907	4,4	**·36**	76	1,8
·38	915	3,3	**·38**	81	2,8
·40	921	2,3	**·40**	88	3,9
0·42	0·00924	+ 1,2	**1·42**	0·00097	+ 4,9
·44	925	+ 0,1	**·44**	107	5,9
·46	924	− 1,0	**·46**	120	6,9
·48	921	2,0	**·48**	135	7,8
·50	916	3,1	**·50**	151	8,7
0·52	0·00909	− 4,1	**1·52**	0·00170	+ 9,6
·54	900	5,1	**·54**	190	10,4
·56	889	6,1	**·56**	211	11,1
·58	875	7,1	**·58**	234	11,8
·60	860	8,0	**·60**	258	12,5
0·62	0·00843	− 8,9	**1·62**	0·00284	+13,0
·64	825	9,8	**·64**	310	13,5
·66	804	10,5	**·66**	338	14,0
·68	783	11,3	**·68**	367	14,4
·70	759	12,0	**·70**	396	14,6
0·72	0·00735	−12,7	**1·72**	0·00425	+14,9
·74	709	13,2	**·74**	455	15,0
·76	682	13,6	**·76**	485	15,1
·78	654	14,1	**·78**	516	15,1
·80	626	14,4	**·80**	546	15,0
0·82	0·00597	−14,7	**1·82**	0·00576	+14,9
·84	567	14,9	**·84**	605	14,6
·86	537	15,1	**·86**	634	14,3
·88	507	15,1	**·88**	663	14,0
·90	477	15,1	**·90**	690	13,5
0·92	0·00446	−15,0	**1·92**	0·00717	+13,0
·94	417	14,8	**·94**	742	12,4
·96	387	14,6	**·96**	766	11,8
·98	358	14,2	**·98**	789	11,1
1·00	0·00330	−13,9	**2·00**	0·00811	+10,3

Added Constant: 0°·00500.

XVI

1	2	3
E	Equation	Δ 0ᵈ·01
d	°	
0·00	0·00200	+ 6,8
·04	227	6,7
·08	253	6,5
·12	279	6,2
·16	302	5,7
·20	324	5,1
0·24	0·00343	+ 4,4
·28	359	3,7
·32	372	2,8
·36	382	1,9
·40	388	1,0
0·44	0·00390	+ 0,1
·48	389	− 0,9
·52	383	1,8
·56	374	2,7
·60	361	3,6
0·64	0·00345	− 4,4
·68	326	5,1
·72	305	5,6
·76	281	6,1
·80	256	6,4
0·84	0·00230	− 6,7
·88	203	6,8
·92	176	6,7
·96	150	6,5
1·00	124	6,2
1·04	0·00100	− 5,7
·08	78	5,2
·12	59	4,5
·16	42	3,8
·20	29	2,9
1·24	0·00019	− 2,0
·28	12	1,1
·32	10	− 0,2
·36	11	+ 0,8
·40	16	1,7
1·44	0·00025	+ 2,6
·48	37	3,5
·52	53	4,3
·56	71	5,0
·60	92	5,6
1·64	0·00116	+ 6,1
·68	141	6,4
·72	167	6,7
·76	194	6,8
·80	221	6,7
1·84	0·00248	+ 6,5
·88	273	6,2
·92	297	5,8
·96	319	5,3
2·00	0·00339	+ 4,6

Added Constant: 0°·00200.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XVII Equations of Longitude XVIII

XVII

F	Equation	3 Δ 1	F	Equ tio	3 Δ 1d
0	o 800	− 11 3	d 250	o 01303	+ 8 1
5	743	11	255	134	7 4
10	688	11 1	260	1377	6 8
15	63	11	265	14 9	6
20	579	10 7	270	1437	5 3
25	5 5	1 4	275	1462	4 5
30	o 474	− 10	280	o 1481	+ 3 6
35	4 5	9 7	285	1498	8
40	378	9 1	290	1509	1 9
45	334	8 6	295	1517	1 1
50	93	8 o	300	1520	+ o 1
55	o oo 54	− 7 3	305	o 01518	− o 8
60	19	6 6	310	1513	1 6
65	188	5 9	315	15	5
70	160	5	320	1488	3 3
75	136	4 4	325	1469	4
80	o o 116	− 3 5	330	o 01446	− 5 o
85	1 1	2 7	335	1419	5 7
90	9	1 8	340	1389	6 5
95	83	− o 9	345	1355	7
100	8	o o	350	1317	7 8
105	o 00082	+ o 8	355	o o1 77	− 8 5
110	88	7	360	1 33	9 o
115	98	6	365	1187	9 5
120	113	3 4	370	1138	10
125	133	4 3	375	1087	10 3
130	o 00156	+ 5	380	o 01035	− 10 7
135	184	5 9	385	981	10 9
140	15	6 6	390	926	11 1
145	49	7 3	395	87	11
150	287	8 o	400	813	11 3
155	o 003 8	+ 8 5	405	o 00757	− 11 2
160	37	9 1	410	7 1	11
165	418	9 6	415	645	11 o
170	468	10 o	420	591	10 8
175	518	10 4	425	537	10 5
180	o57	+ 1 7	430	o 00486	− 1 1
185	6 6	10 9	435	436	9 7
190	681	11	440	389	9 3
195	737	11	445	344	8 7
200	793	11 3	450	30	8 1
205	o o 85	+ 11 2	455	o 00262	− 7 5
210	906	11	460	27	6 8
215	961	11	465	195	6 1
220	1015	10 7	470	166	5 4
225	1 69	10 5	475	141	4 5
230	o o11 o	+ 10 1	480	o 00120	− 3 7
235	1170	9 7	485	104	2 9
240	1 16	9 2	490	92	o
245	126	8 6	495	84	1 1
250	o1303	+ 8 1	500	o 00081	− o 2

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XVIII

G	Equat on	3 Δ 1d	G	Equation	3 Δ 1d
d 0	00400	+ 5 4	d 250	o oo 87	− 5 2
5	4 7	5 4	255	261	5 1
10	454	5 4	260	237	4 9
15	48	5 3	265	1	4 8
20	5 7	5	270	189	4 6
25	533	5 1	275	167	4 4
30	o o 558	+ 4 9	280	o 00146	− 4 1
35	582	4 8	285	125	3 9
40	606	4 6	290	106	3 6
45	629	4 4	295	89	3 3
50	650	4 2	300	73	3 o
55	o 00670	+ 4	305	o 00059	− 2 7
60	689	3 7	310	46	4
65	707	3 4	315	35	1
70	7 3	3 1	320	26	1 7
75	738	2 8	325	18	1 3
80	o 00751	+ 5	330	00013	− 1 o
85	763		335	8	o 6
90	77	1 8	340	7	− o 3
95	781	1 4	345	6	+ o 1
100	786	1 1	350	8	o 5
105	o 00791	+ o 7	355	o 00011	+ o 9
110	793	+ o 4	360	16	1 2
115	794	o o	365	3	1 6
120	793	o 4	370	3	o
125	790	o 8	375	43	3
130	o 00785	− 1 1	380	o 00055	+ 6
135	778	1 5	385	69	2 9
140	770	1 8	390	84	3
145	759	2	395	101	3 6
150	748	2 5	400	120	3 8
155	o 0735	− 9	405	o 00139	+ 4 o
160	720	3	410	160	4 3
165	7 3	3 5	415	182	4 5
170	685	3 8	420	205	4 7
175	666	4 o	425	2 9	4 9
180	o 00645	− 4 2	430	o 00254	+ 5 o
185	624	4 5	435	79	5 2
190	600	4 7	440	305	5 3
195	577	4 8	445	332	5 4
200	552	5 o	450	359	5 4
205	o 00527	− 5	455	o 00386	+ 5 4
210	5 1	5 3	460	413	5 4
215	475	5 3	465	440	5 4
220	448	5 4	470	466	5 3
225	421	5 4	475	493	5 3
230	o 00394	− 5 4	480	o 00519	+ 5 2
235	366	5 4	485	545	5 o
240	340	5 4	490	569	4 9
245	313	5 3	495	593	4 7
250	o 00287	− 5 2	500	o 00616	+ 4 5

Ad1 d C t t oo

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XIX Equations of Longitude

1	2	3	1	2	3
H	Equation	$\frac{\Delta}{1^d}$	**H**	Equation	$\frac{\Delta}{1^d}$
d	°		d	°	
0	0·01000	+11,8	**250**	0·00896	−11,7
5	1059	11,8	**255**	837	11,6
10	1118	11,7	**260**	780	11,4
15	1176	11,6	**265**	723	11,2
20	1233	11,4	**270**	667	11,0
25	1290	11,2	**275**	613	10,7
30	0·01346	+10,9	**280**	0·00561	−10,3
35	1399	10,6	**285**	510	9,9
40	1451	10,2	**290**	462	9,5
45	1502	9,8	**295**	416	9,0
50	1549	9,4	**300**	372	8,5
55	0·01595	+ 8,9	**305**	0·00331	− 8,0
60	1638	8,4	**310**	292	7,3
65	1678	7,8	**315**	257	6,7
70	1716	7,2	**320**	225	6,1
75	1751	6,6	**325**	196	5,4
80	0·01782	+ 5,9	**330**	0·00171	− 4,8
85	1810	5,3	**335**	149	4,0
90	1835	4,6	**340**	130	3,3
95	1856	3,9	**345**	115	2,6
100	1873	3,1	**350**	105	1,8
105	0·01887	+ 2,4	**355**	0·00098	− 1,0
110	1897	1,6	**360**	95	− 0,3
115	1903	0,9	**365**	95	+ 0,5
120	1906	+ 0,1	**370**	100	1,3
125	1904	− 0,7	**375**	108	2,0
130	0·01899	− 1,4	**380**	0·00120	+ 2,8
135	1890	2,2	**385**	136	3,5
140	1877	2,9	**390**	155	4,2
145	1861	3,7	**395**	178	5,0
150	1840	4,4	**400**	204	5,6
155	0·01816	− 5,1	**405**	0·00234	+ 6,3
160	1789	5,8	**410**	268	6,9
165	1759	6,5	**415**	303	7,5
170	1724	7,1	**420**	343	8,1
175	1688	7,7	**425**	385	8,6
180	0·01648	− 8,2	**430**	0·00430	+ 9,2
185	1605	8,8	**435**	476	9,6
190	1560	9,3	**440**	526	10,0
195	1513	9,7	**445**	577	10,4
200	1463	10,1	**450**	630	10,8
205	0·01411	−10,5	**455**	0·00685	+11,1
210	1358	10,8	**460**	741	11,3
215	1303	11,1	**465**	797	11,5
220	1246	11,3	**470**	855	11,6
225	1190	11,5	**475**	914	11,7
230	0·01131	−11,7	**480**	0·00973	+11,8
235	1073	11,8	**485**	1032	11,8
240	1014	11,8	**490**	1091	11,7
245	954	11,8	**495**	1150	11,6
250	0·00896	−11,7	**500**	0·01207	+11,5

Added Constant : 0°·01000.

XX

1	2	3	1	2	3
I	Equation	$\frac{\Delta}{1^d}$	**I**	Equation	$\frac{\Delta}{1^d}$
d	°		d	°	
0	0·00400	+ 4,6	**250**	0·00367	− 4,6
5	423	4,6	**255**	344	4,5
10	446	4,6	**260**	322	4,5
15	469	4,5	**265**	299	4,4
20	491	4,4	**270**	278	4,4
25	513	4,4	**275**	257	4,2
30	0·00534	+ 4,2	**280**	0·00236	− 4,1
35	555	4,1	**285**	216	3,9
40	575	4,0	**290**	197	3,8
45	595	3,8	**295**	178	3,6
50	613	3,6	**300**	161	3,4
55	0·00632	+ 3,5	**305**	0·00145	− 3,2
60	648	3,3	**310**	130	3,0
65	664	3,1	**315**	115	2,7
70	679	2,8	**320**	102	2,5
75	693	2,6	**325**	90	2,2
80	0·00704	+ 2,3	**330**	0·00080	− 2,0
85	716	2,1	**335**	71	1,7
90	725	1,8	**340**	63	1,4
95	734	1,5	**345**	57	1,1
100	741	1,3	**350**	52	0,8
105	0·00746	+ 1,0	**355**	0·00048	− 0,6
110	750	0,7	**360**	46	− 0,3
115	753	0,4	**365**	46	0,0
120	754	+ 0,1	**370**	47	+ 0,3
125	754	− 0,2	**375**	49	0,6
130	0·00752	− 0,5	**380**	0·00053	+ 0,9
135	749	0,8	**385**	58	1,2
140	744	1,1	**390**	65	1,5
145	738	1,4	**395**	74	1,8
150	730	1,7	**400**	83	2,0
155	0·00721	− 1,9	**405**	0·00094	+ 2,3
160	711	2,2	**410**	106	2,6
165	700	2,5	**415**	119	2,8
170	686	2,7	**420**	134	3,0
175	672	2,9	**425**	150	3,3
180	0·00657	− 3,2	**430**	0·00166	+ 3,4
185	641	3,4	**435**	184	3,6
190	623	3,5	**440**	203	3,8
195	606	3,7	**445**	223	4,0
200	586	3,9	**450**	243	4,1
205	0·00566	− 4,1	**455**	0·00264	+ 4,2
210	546	4,2	**460**	285	4,3
215	525	4,3	**465**	307	4,4
220	503	4,4	**470**	329	4,5
225	481	4,5	**475**	351	4,6
230	0·00458	− 4,5	**480**	0·00374	+ 4,6
235	436	4,6	**485**	397	4,6
240	413	4,6	**490**	420	4,6
245	389	4,6	**495**	443	4,6
250	0·00367	− 4,6	**500**	0·00466	+ 4,5

Added Constant : 0°·00400.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XXI **Equation of Longitude** **Argument J**

J	Equation	Δ^3_0	J	Equation	Δ^3_0	J	Equation	Δ^3_0	J	Equation	Δ^3_0
1850 0	00576	− 1 8	**1860 0**	0 00304	− 1 5	**1870 0**	00488	− 3 3	**1880 0**	00614	− 9 8
2	576	+ 1 8	**2**	303	+ 8	**2**	480	4 5	**2**	594	9 5
4	583	4 3	**4**	3 7	2 5	**4**	470	5 0	**4**	577	8 5
6	593	4 8	**6**	313	4 5	**6**	460	6 0	**6**	560	7 3
8	60	5 3	**8**	3 5	6 3	**8**	446	7 8	**8**	548	5 8
1851 0	0 00614	+ 6 0	**1861 0**	0 0338	⊦ 7 5	**1871 0**	0 004 9	8 8	**1881 0**	0 00537	5 3
2	626	6 3	**2**	355	9 5	**2**	411	8 8	**2**	527	4 0
4	639	7 3	**4**	376	10 3	**4**	394	8 3	**4**	5 1	3 8
6	655	8 5	**6**	396	10 5	**6**	378	8 3	**6**	51	3 0
8	673	8 8	**8**	418	12 0	**8**	361	8 8	**8**	509	1
1852 0	0 690	+ 8 5	**1862 0**	0 00444	+13 5	**1872 0**	0 00343	− 8 8	**1882 0**	0 00508	− 0 8
2	707	8 0	**2**	47	13 5	**2**	3 6	7 3	**2**	506	0 8
4	7	7 8	**4**	498	1 8	**4**	314	5 3	**4**	505	+ 3
6	738	7 3	**6**	523	12 3	**6**	305	3 5	**6**	507	0 8
8	751	6 3	**8**	547	1	**8**	300	− 1 5	**8**	508	0 8
1853 0	0 763	+ 6 3	**1863 0**	0 0 571	+10 8	**1873 0**	0 00299	⊦ 0 3	**1883 0**	0 00510	+ 1 3
2	776	5 3	**2**	590	9 0	**2**	3 1	8	**2**	513	2 0
4	784	4 0	**4**	607	7 8	**4**	310	5 8	**4**	518	2 5
6	79	4	**6**	6 1	6 3	**6**	3 4	8	**6**	523	2
8	800	+ 3	**8**	63	4 8	**8**	342	9 5	**8**	5 6	2 8
1854 0	0 801	0 0	**1864 0**	0 00640	+ 3 8	**1874 0**	0 0 362	+11 3	**1884 0**	0 00534	+ 4 5
2	800	− 0 3	**2**	647	+ 1 3	**2**	387	12 8	**2**	544	4 8
4	800	1 0	**4**	645	− 1 3	**4**	413	14 3	**4**	553	4 0
6	796	8	**6**	642	3 8	**6**	44	15 3	**6**	560	4 3
8	789	3 3	**8**	634	4 5	**8**	475	17 3	**8**	570	5 8
1855 0	783	− 3 8	**1865 0**	006 4	− 5 8	**1875 0**	0 00511	+18 0	**1885 0**	0 00583	+ 6 0
2	774	5 0	**2**	611	7	**2**	546	17 5	**2**	594	6 0
4	763	6 3	**4**	596	7 3	**4**	581	18 0	**4**	607	6
6	749	7 3	**6**	58	7	**6**	618	17 8	**6**	618	5 3
8	734	8 3	**8**	568	8 0	**8**	65	17	**8**	628	5 8
1856 0	0 00716	9 5	**1866 0**	0 0055	− 8 8	**1876 0**	0 00686	+15 8	**1886 0**	0 00641	+ 7 3
2	696	10 5	**2**	533	7 8	**2**	715	14 3	**2**	657	8 0
4	674	11 3	**4**	519	6 3	**4**	743	12 5	**4**	673	7 0
6	651	11 5	**6**	508	5 8	**6**	765	9 5	**6**	685	5 8
8	6 8	1 5	**8**	496	5 8	**8**	781	7 3	**8**	696	5 3
1857 0	0 00605	−12 3	**1867 0**	0485	− 4 5	**1877 0**	0 00794	+ 5 8	**1887 0**	0 0 706	+ 5 3
2	579	13	**2**	478	2 8	**2**	8 4	3 5	**2**	717	5 0
4	553	1 8	**4**	474	1 5	**4**	808	+ 1 5	**4**	7 6	4 0
6	5 8	1 0	**6**	47	− 0 5	**6**	81	− 8	**6**	733	3 0
8	505	1	**8**	47	0	**8**	805	3 5	**8**	738	3 5
1858 0	0 00480	−13 0	**1868 0**	0 0047	+ 0 5	**1878 0**	0 0796	− 5 3	**1888 0**	0 00747	+ 4 3
2	453	1 8	**2**	474	1 8	**2**	784	7	**2**	755	3 0
4	4 9	11 5	**4**	479	3	**4**	768	7 8	**4**	759	1 8
6	4 7	11 3	**6**	483		**6**	753	8 0	**6**	76	1 5
8	384	11 0	**8**	487	0	**8**	736	9 5	**8**	765	1 0
1859 0	0 0363	− 9 8	**1869 0**	0 00491	+ 1 8	**1879 0**	0 00715	−10 3	**1889 0**	0 00766	+ 0 8
2	345	8 0	**2**	494	+ 1 0	**2**	695	10 0	**2**	768	1 0
4	331	6 3	**4**	495	0 0	**4**	675	10 5	**4**	770	1 0
6	320	5 5	**6**	494	− 5	**6**	653	10 5	**6**	772	1 0
8	309	4 0	**8**	493	1 5	**8**	633	9 8	**8**	774	0 8
1860 0	0 00304	− 1 5	**1870 0**	0 00488	− 3 3	**1880 0**	0 00614	− 9 8	**1890 0**	0 00775	+ 0 3

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SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XXI *continued* — Equation of Longitude — Argument J

1	2	3	1	2	3	1	2	3	1	2	3
J	Equation	Δ $0^{y}\cdot1$	J	Equation	Δ $0^{y}\cdot1$	J	Equation	Δ $0^{y}\cdot1$	J	Equation	Δ $0^{y}\cdot1$
	°			°			°			°	
1890·0	0·00775	+ 0,3	**1900·0**	0·00818	+ 3,5	**1910·0**	0·00485	+ 7,8	**1920·0**	0·00545	+ 8,8
·2	775	0,0	**·2**	823	+ 1,3	**·2**	502	9,0	**·2**	565	10,3
·4	775	+ 0,3	**·4**	823	− 1,3	**·4**	521	10,5	**·4**	586	10,5
·6	776	0,0	**·6**	818	3,5	**·6**	544	12,0	**·6**	607	11,3
·8	775	− 1,0	**·8**	809	6,0	**·8**	569	13,3	**8**	631	13,5
1891·0	0·00772	− 0,5	**1901·0**	0·00794	− 7,8	**1911·0**	0·00597	+ 13,8	**1921·0**	0·00661	+ 15,3
·2	773	0,3	**·2**	778	9,0	**·2**	624	12,8	**·2**	692	14,8
·4	771	1,0	**·4**	758	10,3	**·4**	648	12,0	**·4**	720	12,8
·6	769	1,8	**·6**	737	10,8	**·6**	672	12,0	**·6**	743	11,3
·8	764	2,8	**·8**	715	11,5	**·8**	696	11,8	**·8**	765	11,3
1892·0	0·00758	− 3,5	**1902·0**	0·00691	− 12,0	**1912·0**	0·00719	+ 11,0	**1922·0**	0·00788	+ 11,0
·2	750	4,0	**·2**	667	12,0	**·2**	740	9,8	**·2**	809	10,0
·4	742	4,8	**·4**	643	11,0	**·4**	758	9,0	**·4**	828	9,5
·6	731	6,3	**·6**	623	10,0	**·6**	776	8,3	**·6**	847	9,5
·8	717	7,5	**·8**	603	9,8	**·8**	791	7,3	**·8**	866	8,5
1893·0	0·00701	− 8,8	**1903·0**	0·00584	− 8,8	**1913·0**	0·00805	+ 6,0	**1923·0**	0·00881	+ 6,3
·2	682	9,8	**·2**	568	7,3	**·2**	815	3,5	**·2**	891	3,8
·4	662	10,3	**·4**	555	6 0	**·4**	819	1,8	**·4**	896	2,5
·6	641	11,0	**·6**	544	4,5	**·6**	822	+ 0,5	**·6**	901	+ 1,5
·8	618	12,3	**·8**	537	3,5	**·8**	821	− 1,5	**·8**	902	− 0,3
1894·0	0·00592	− 13,5	**1904·0**	0·00530	− 1,8	**1914·0**	0·00816	− 2,8	**1924·0**	0·00900	− 1,8
·2	564	13,0	**·2**	529	0,5	**·2**	810	3,8	**·2**	895	2,5
·4	538	13,5	**·4**	528	− 0,3	**·4**	801	4,8	**·4**	890	3,0
·6	512	13,0	**·6**	528	+ 0,3	**·6**	791	5,3	**·6**	883	4,3
·8	488	12,5	**·8**	529	1,3	**·8**	780	5,8	**·8**	873	4,8
1895·0	0·00463	− 12,3	**1905·0**	0·00533	+ 1,5	**1915·0**	0·00768	− 6,8	**1925·0**	0·00864	− 4,3
·2	441	10,5	**·2**	535	0,8	**·2**	753	8,3	**·2**	856	4,5
·4	421	9,0	**·4**	536	0,5	**·4**	735	8,5	**·4**	846	4,3
·6	405	6,8	**·6**	537	0,5	**·6**	719	8,0	**·6**	839	3,3
·8	394	4,3	**·8**	538	+ 0,5	**·8**	703	9,0	**·8**	833	3,0
1896·0	0·00388	− 1,8	**1906·0**	0·00539	− 0,3	**1916·0**	0·00683	− 9,3	**1926·0**	0·00827	− 2,0
·2	387	+ 0,5	**·2**	537	1,5	**·2**	664	9,5	**·2**	825	1,5
·4	390	3,0	**·4**	533	2,8	**·4**	645	9,3	**·4**	821	1,8
·6	399	5,0	**·6**	526	3,5	**·6**	627	8,8	**·6**	818	0,8
·8	410	7,0	**·8**	519	3,8	**·8**	610	8,8	**·8**	818	− 0,3
1897·0	0·00427	+ 9,8	**1907·0**	0·00511	− 4,3	**1917·0**	0·00592	− 9,3	**1927·0**	0·00817	+ 0,5
·2	449	11,8	**·2**	502	5,3	**·2**	573	8,5	**·2**	820	1,5
·4	474	13,3	**·4**	490	6,0	**·4**	558	7,5	**·4**	823	1,8
·6	502	14,0	**·6**	478	5,8	**·6**	543	6,5	**·6**	827	1,8
·8	530	15,0	**·8**	467	4,8	**·8**	532	6,0	**·8**	830	1,3
1898·0	0·00562	+ 16,5	**1908·0**	0·00459	− 4,3	**1918·0**	0·00519	− 5,8	**1928·0**	0·00832	+ 1,0
·2	596	16,8	**·2**	450	3,3	**·2**	509	3,8	**·2**	834	+ 0,5
·4	629	16,3	**·4**	446	1,8	**·4**	504	2,5	**·4**	834	− 0,5
·6	661	15,8	**·6**	443	1,0	**·6**	499	1,8	**·6**	832	1,8
·8	692	15,5	**·8**	442	0,8	**·8**	497	− 0,3	**·8**	827	3,3
1899·0	0·00723	+ 15,0	**1909·0**	0·00440	− 0,8	**1919·0**	0·00498	+ 1,3	**1929·0**	0·00819	− 5,0
·2	752	13,5	**·2**	439	+ 0,8	**·2**	502	2,3	**·2**	807	6,5
·4	777	11,0	**·4**	443	4,3	**·4**	507	4,0	**·4**	793	7,5
·6	796	8,0	**·6**	456	7,0	**·6**	518	5,8	**·6**	777	8,3
·8	809	5,0	**·8**	471	7,3	**·8**	530	6,8	**·8**	760	8,8
1900·0	0·00818	+ 3,5	**1910·0**	0·00485	+ 7,8	**1920·0**	0·00545	+ 8,8	**1930·0**	0·00742	− 10,3

Added Constant : 0°·00600.

XXI *continued* — **Equation of Longitude** — **Argument J**

J	Equation	Δ 3	J	Equation	Δ 3 0 1	J	Equation	Δ 3 0 1	J	Equation	Δ 3 0 1
1930 0	074	− 1 3	**1940 0**	00568	− 8 3	**1950 0**	0 00715	+ 0 5	**1960 0**	0 00911	− 4 3
2	719	11 5	**2**	553	6 5	**2**	715	0 0	**2**	899	5 5
4	696	11 5	**4**	54	5 0	**4**	715	− 0 3	**4**	889	6 5
6	673	1 3	**6**	533	4 3	**6**	714	1 8	**6**	873	8 5
8	647	1 8	**8**	5 5	3 3	**8**	7 8	2 5	**8**	855	9 3
1931 0	0 006	− 1 3	**1941 0**	0 005 0	− 2 3	**1951 0**	0 07 4	− 8	**1961 0**	0 00836	− 9 3
2	598	11 0	**2**	516	2 5	**2**	697	3 8	**2**	818	9 5
4	578	9	**4**	510	2 5	**4**	689	5	**4**	798	9 5
6	56	7	**6**	506	1 5	**6**	677	5 5	**6**	78	8 3
8	550	5 3	**8**	5 4	0 8	**8**	667	6 3	**8**	765	7 5
1932 0	00541	− 3 8	**1942 0**	0 00503	− 0 3	**1952 0**	0 0065	− 8 0	**1962 0**	0 0075	− 6 8
2	535	− 0	**2**	503	0 5	**2**	635	8 5	**2**	738	5 0
4	533	+ 8	**4**	5 1	1 0	**4**	618	9 0	**4**	73	4 3
6	538	3 5	**6**	499	0 8	**6**	599	9 0	**6**	7 1	3 3
8	547	6 5	**8**	498	1 0	**8**	58	9 5	**8**	717	
1933 0	0 00564	+ 9 5	**1943 0**	0 0 495	− 0 8	**1953 0**	0 00561	− 10 5	**1963 0**	00715	1 0
2	585	11 0	**2**	495	0	**2**	540	10 3	**2**	713	− 0 5
4	508	11 8	**4**	495	− 0 5	**4**	520	10 0	**4**	713	+ 0 5
6	63	13	**6**	493	− 0 3	**6**	500	9 8	**6**	715	1 3
8	660	14 5	**8**	494	+ 0 5	**8**	481	9 5	**8**	718	0
1934 0	0 00690	+ 16 0	**1944 0**	0 0 495	+ 1 0	**1954 0**	0 00462	− 9 3	**1964 0**	0 007 3	+ 2
2	7 4	16 5	**2**	497	1 5	**2**	444	8 3	**2**	726	1 8
4	756	15 5	**4**	501	1 8	**4**	429	6 3	**4**	730	1 3
6	786	15 5	**6**	5 4	1 8	**6**	419	4 3	**6**	731	+ 0 5
8	818	15 3	**8**	5 8	2 3	**8**	41	2 8	**8**	732	0
1935 0	847	+ 14 5	**1945 0**	0 00513	+ 3 0	**1955 0**	0 00408	− 0 3	**1965 0**	0 00731	− 0 8
2	876	1 8	**2**	520	4 3	**2**	411	+ 2 3	**2**	7 9	1 5
4	898	9 8	**4**	530	4 3	**4**	417	4 0	**4**	725	2 5
6	915	8 3	**6**	537	4 3	**6**	427	5 5	**6**	719	4
8	931	6 3	**8**	547	5 8	**8**	439	7 8	**8**	709	5 8
1936 0	0 00940	+ 3 5	**1946 0**	0 00560	+ 6 5	**1956 0**	0 00458	+ 10 3	**1966 0**	0 00696	− 7 5
2	945	+ 1 3	**2**	573	5 5	**2**	480	12 5	**2**	679	8 8
4	945	− 1 0	**4**	58	4 8	**4**	508	14 0	**4**	661	9 3
6	941	3 3	**6**	59	5 3	**6**	536	14 5	**6**	642	10 0
8	93	5 8	**8**	603	5 5	**8**	566	17 0	**8**	621	10 0
1937 0	00918	− 8 3	**1947 0**	0 00614	+ 5 8	**1957 0**	0 00604	+ 19 0	**1967 0**	0 00602	− 9 8
2	899	1 3	**2**	6 6	5 8	**2**	64	18 5	**2**	58	9 0
4	877	11 5	**4**	637	5 0	**4**	678	17 3	**4**	566	7 3
6	853	11 8	**6**	646	5 0	**6**	711	17	**6**	553	5 8
8	830	12 8	**8**	657	5 3	**8**	746	17 0	**8**	543	4 0
1938 0	0 00802	− 13 8	**1948 0**	0 00667	+ 5 3	**1958 0**	0 00779	+ 16 8	**1968 0**	00537	− 2 5
2	775	14 0	**2**	678	4 8	**2**	813	15 3	**2**	532	− 1 8
4	746	14 0	**4**	686	3 3	**4**	840	12 3	**4**	530	0 0
6	719	13 0	**6**	691	3 0	**6**	86	10 3	**6**	533	+ 2 5
8	694	1 8	**8**	698	3 3	**8**	881	8 3	**8**	540	4 5
1939 0	0 00668	− 12 8	**1949 0**	0 00704	+ 2 3	**1959 0**	0 00895	+ 6 5	**1969 0**	0 00551	+ 5 5
2	643	11 8	**2**	7 7	0	**2**	9 7	4 3	**2**	562	7 0
4	6 1	1 3	**4**	712	0	**4**	912	2 3	**4**	579	9 8
6	602	8 8	**6**	715	+ 0 3	**6**	916	+ 1 0	**6**	601	10 5
8	586	8 5	**8**	713	0	**8**	916	− 1 3	**8**	621	10 3
1940 0	0 00568	− 8 3	**1950 0**	0 00715	+ 0 5	**1960 0**	0 00911	− 4 3	**1970 0**	0 00642	+ 11 3

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SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XXI *continued* **Equation of Longitude** **Argument J**

1	2	3	1	2	3	1	2	3
J	Equation	Δ 0y·1	J	Equation	Δ 0y·1	J	Equation	Δ 0y·1
	°			°			°	
1970·0	0·00642	+ 11,3	1980·0	0·00382	+ 7,8	1990·0	0·00344	− 10,8
·2	666	12,3	·2	398	7,8	·2	322	9,5
·4	691	12,3	·4	413	7,8	·4	306	7,3
·6	715	12,3	·6	429	7,5	·6	293	5,8
·8	740	12,0	·8	443	8,0	·8	283	4,5
1971·0	0·00763	+ 10,8	1981·0	0·00461	+ 9,0	1991·0	0·00275	− 2,5
·2	783	9,3	·2	479	8,0	·2	273	0,0
·4	800	7,8	·4	493	6,8	·4	275	+ 2,3
·6	814	6,0	·6	506	6,5	·6	282	4,5
·8	824	4,8	·8	519	5,8	·8	293	7,5
1972·0	0·00833	+ 3,8	1982·0	0·00529	+ 4,8	1992·0	0·00312	+ 11,0
·2	839	+ 2,0	·2	538	3,5	·2	337	13,3
·4	841	0,0	·4	543	2,3	·4	365	14,5
·6	839	− 2,8	·6	547	2,0	·6	395	15,5
·8	830	4,5	·8	551	1,8	·8	427	16,8
1973·0	0·00821	− 5,3	1983·0	0·00554	+ 1,3	1993·0	0·00462	+ 19,0
·2	809	7,5	·2	556	− 0,5	·2	503	20,3
·4	791	9,3	·4	552	2,3	·4	543	19,5
·6	772	10,0	·6	547	2,5	·6	581	19,0
·8	751	11,0	·8	542	3,0	·8	619	19,3
1974·0	0·00728	− 12,3	1984·0	0·00535	− 3,5	1994·0	0·00658	+ 18,8
·2	702	13,0	·2	528	3,3	·2	694	16,5
·4	676	12,8	·4	522	2,8	·4	724	14,5
·6	651	12,8	·6	517	1,8	·6	752	12,3
·8	625	13,5	·8	515	1,3	·8	773	9,8
1975·0	0·00597	− 14,3	1985·0	0·00512	− 1,5	1995·0	0·00791	+ 8,5
·2	568	13,8	·2	509	− 1,0	·2	807	6,0
·4	542	12,8	·4	508	0,0	·4	815	3,0
·6	517	12,3	·6	509	+ 0,3	·6	819	+ 0,5
·8	493	12,5	·8	509	0,8	·8	817	− 2,0
1976·0	0·00467	− 12,0	1986·0	0·00512	+ 0,8	1996·0	0·00811	− 4,3
·2	445	10,8	·2	512	1,0	·2	800	7,0
·4	424	10,0	·4	516	2,0	·4	783	7,8
·6	405	8,8	·6	520	2,0	·6	769	8,3
·8	389	7,8	·8	524	1,5	·8	750	10,0
1977·0	0·00374	− 7,5	1987·0	0·00526	+ 1,3	1997·0	0·00729	− 10,5
·2	359	6,3	·2	529	+ 0,8	·2	708	11,3
·4	349	5,0	·4	529	− 0,8	·4	684	11,8
·6	339	4,5	·6	526	1,8	·6	661	11,0
·8	331	3,5	·8	522	3,0	·8	640	10,5
1978·0	0·00325	− 2,5	1988·0	0·00514	− 4,0	1998·0	0·00619	− 10,3
·2	321	1,5	·2	506	5,0	·2	599	8,8
·4	319	− 0,5	·4	494	5,8	·4	584	7,3
·6	319	+ 0,8	·6	483	7,0	·6	570	6,8
·8	322	2,5	·8	466	9,0	·8	557	5,3
1979·0	0·00329	+ 3,5	1989·0	0·00447	− 9,8	1999·0	0·00549	− 3,5
·2	336	4,0	·2	427	10,3	·2	543	2,8
·4	345	4,5	·4	406	10,0	·4	538	2,0
·6	354	5,5	·6	387	10,3	·6	535	− 0,8
·8	367	7,0	·8	365	10,8	·8	535	+ 0,3
1980·0	0·00382	+ 7,8	1990·0	0·00344	− 10,8	2000·0	0·00536	+ 0,5

Added Constant : 0°·00600

Tables of Longıtude, Latıtude, and Radıus Vector

XXII — Equatıon of Longıtude — Argument K

		3	4			3	4			3	4			3	4
K	Equ tıon	Δ 0 001	½ Δ	K	Eqı a t o ı	Δ 0ᵈ 00	½ Δ	K	Equa tıo	Δ 0 001	½ Δ	K	Equa tıon	Δ 0ᵈ 001	½ Δ
				d				d				d			
0 000	o 7 00	− 9 8		0 250	o o 888	+ 6 1	+ 10	0 500	8674	+ 7 4	− 04	0 750	o 1 431	− 17	− 08
005	6851	9 8	00	255	9 1	7 1	10	505	8810	26 9	06	755	10343	18 1	10
010	6702	29 8		260	2959	8 1	10	510	8943	6 4	04	760	10 50	19 0	08
015	6553	29 7	+ 2	265	30	9 1	10	515	9074	5 9	06	765	10153	19 7	6
020	64 5	9 5		270	3050	1	12	520	9 0	25 4	04	770	10 53	0 4	8
025	6 58	29 3	02	275	31 4	11	08	525	93 8	4 9	06	775	09949	1	8
0 030	o 0611	− 9 1	+ 2	0 280	o 0316	+ 1 1	+ 10	0 530	o 9451	+ 4	− 08	0 780	o 09841	− 0	− 8
035	5967	28 9	02	285	32 5	13 1	10	535	9570	3 5	6	785	9729	7	06
040	5823	8 6	4	290	3 93	14 0	8	540	9686	9	06	790	9614	3 3	06
045	5681	8 3	0	295	3365	14 9	10	545	9799	2 3	6	795	9496	4 0	08
050	5540	8 0	4	300	344	15 8	8	550	9909	21 6	08	800	9374	4 7	06
0 055	o 05401	− 7 6	+ 04	0 305	o 035 3	+ 16 7	+ 1	0 555	10015	+ 0 8	− 08	0 805	o 09 49	− 25	− 04
060	5 64	7	4	310	36 9	17 6	8	560	1 117	20 0	08	810	9122	25 7	06
065	51 9	6 7	6	315	3699	18 5	10	565	10 15	19	08	815	8992	26 3	06
070	4997	6 2	4	320	3794	19 3	06	570	1 309	18 3	10	820	8859	26 8	04
075	4867	5 7	06	325	389	20 0	8	575	10398	17 5	6	825	87 4	27	04
0 080	o 04740	− 25 1	+ 06	0 330	03994	+ 20 8	+ 08	0 580	1 484	+ 16 7	− 10	0 830	08587	− 27 6	− 4
085	4616	4 6	04	335	4100	21 6	08	585	1 565	15 8	08	835	8448	28 0	04
090	4494	4 0	08	340	4 10	2 3	06	590	1 642	14 9	1	840	8307	8 3	02
095	4376	23 3	06	345	4323	3 0	08	595	10714	13 9	10	845	8165	8 6	04
100	4261	6	08	350	444	23 7	06	600	10781	12 9	10	850	8021	8 9	0
0 105	o 04150	− 21 9	+ 06	0 355	o 04560	+ 4 3	+ 06	0 605	o 1 843	+ 12 0	− 8	0 855	o 07876	− 29	− 04
110	4 4	1	8	360	4683	4 8	04	610	10901	11 1	10	860	7729	9 5	− 0
115	3938	0 4	8	365	48 8	5 4	08	615	10954	10 1	1	865	7581	9 6	00
120	3838	19 6	8	370	4937	26	4	620	1100	9 1	10	870	7433	29 6	00
125	374	18 8	8	375	5068	26 5	6	625	11 45	8	12	875	7 85	9 7	− 0
0 130	o 365	− 18 0	+ 08	0 380	o 052	+ 27	+ 04	0 630	1108	+ 7 0	08	0 880	o 07136	− 9 8	00
135	356	17	08	385	5338	27 4	04	635	11115	6 0	12	885	6987	9 8	00
140	3478	16 3	10	390	5476	7 8	04	640	1114	4 9	10	890	6838	29 8	00
145	3399	15 3	1	395	5616	8	4	645	11164	3 9	10	895	6689	9 7	+ 02
150	33 5	14 4	08	400	5758	8 5	02	650	11181	8	12	900	6541	9 6	00
0 155	o 03 55	− 13 5	+ 10	0 405	o 05901	+ 8 7	+ 02	0 655	o 1119	+ 1 8	− 8	0 905	o 06393	− 29 5	+ 02
160	3190	12 5	10	410	6045	29 0	04	660	11199	+ 0 8	12	910	6 46	29 3	+ 02
165	3130	11 6	8	415	6191	9 3	02	665	11 00	− 0 4	12	915	6100	29	00
170	3074	10 6	1	420	6338	29 5	+ 0	670	11195	1 4	08	920	5954	29 0	+ 04
175	3 24	9 6	8	425	6486	9 6	00	675	11186	4	1	925	581	28 6	04
0 180	o 02978	− 8 6	+ 12	0 430	o 06634	+ 9 7	+ 02	0 680	11171	− 3 5	− 10	0 930	o 05668	− 8 3	+ 02
185	2938	7 6	08	435	6783	9 8	00	685	11151	4 6	12	935	5527	7 9	6
190	290	6 6	12	440	6932	29 8	0	690	11125	5 6	08	940	5389	27 5	0
195	287	5 5	10	445	7081	29 8	0	695	11 95	6 6	1	945	5 5	7 2	04
200	2847	4 4	12	450	7 3	29 8	00	700	11059	7 7	10	950	5117	6 7	06
0 205	o o 828	− 3 4	+ 08	0 455	o 07379	+ 29 7	− 02	0 705	o 11018	− 8 7	− 10	0 955	o 04985	− 26 1	+ 6
210	2813	4	12	460	7527	29 6	0	710	1097	9 7	10	960	4856	25 6	04
215	804	1 3	10	465	7675	29 4	− 04	715	10921	10 7	10	965	4729	5 1	06
220	2800	− 0	1	470	78 1	29 2	0	720	10865	11 6	08	970	4605	24 5	06
225	2802	+ 0 8	08	475	7967	29 1	− 02	725	10805	12 6	12	975	4484	23 9	6
0 230	o 02808	+ 1 8	+ 1	0 480	o 0811	+ 8 8	− 04	0 730	o 10739	− 13 6	− 08	0 980	o 04366	− 3 2	+ 08
235	28 0	3 0	1	485	8 55	8 4	04	735	10669	14 5	1	985	4252	5	06
240	2838	4 0	08	490	8396	28 1	02	740	10594	15 4	08	990	4141	1 9	06
245	2860	5 0	12	495	8536	27 8	04	745	10515	16 3	10	995	4033	21 1	10
0 250	o 02888	+ 6 1	+ 10	0 500	o 08674	+ 27 4	− 04	0 750	o 10431	− 17 2	− 08	1 000	o 03930	− 20 3	+ 08

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XXII *continued* — **Equation of Longitude** — **Argument K**

1	2	3	4
K	Equation	Δ $0^d \cdot 001$	½ Δ^2
d	°		
1·000	0·03930	−20,3	+,08
·005	3830	19,6	,08
·010	3734	18,8	,08
·015	3643	18,0	,08
·020	3555	17,2	,08
·025	3471	16,3	,10
1·030	0·03393	−15,3	+,10
·035	3319	14,4	,08
·040	3249	13,5	,10
·045	3185	12,5	,10
·050	3125	11,6	,08
1·055	0·03070	−10,6	+,12
·060	3020	9,6	,08
·065	2974	8,6	,12
·070	2935	7,6	,08
·075	2899	6,6	,12
1·080	0·02870	− 5,5	+,10
·085	2845	4,4	,12
·090	2827	3,4	,08
·095	2812	2,4	,12
·100	2804	1,3	,10
1·105	0·02800	− 0,2	+,12
·110	2802	+ 0,8	,08
·115	2809	1,8	,12
·120	2822	3,0	,12
·125	2840	4,0	,08
1·130	0·02862	+ 5,0	+,12
·135	2891	6,1	,10
·140	2924	7,1	,10
·145	2963	8,1	,10
·150	3006	9,1	,10
1·155	0·03055	+10,2	+,12
·160	3109	11,2	,08
·165	3167	12,1	,10
·170	3231	13,1	,10
·175	3299	14,0	,08
1·180	0·03372	+14,9	+,10
·185	3449	15,8	,08
·190	3530	16,7	,10
·195	3617	17,6	,08
·200	3707	18,5	,10
1·205	0·03802	+19,3	+,06
·210	3901	20,0	,08
·215	4003	20,8	,08
·220	4109	21,6	,08
·225	4220	22,3	,06
1·230	0·04333	+23,0	+,08
·235	4450	23,7	,06
·240	4571	24,3	,06
·245	4694	24,8	,04
1·250	0·04819	+25,4	+,08

1	2	3	4
K	Equation	Δ $0^d \cdot 001$	½ Δ^2
d	°		
1·250	0·04819	+25,4	+,08
·255	4948	26,0	,04
·260	5080	26,5	,05
·265	5214	27,0	,04
·270	5350	27,4	,04
·275	5488	27,8	,04
1·280	0·05628	+28,2	+,04
·285	5770	28,5	,02
·290	5913	28,7	,02
·295	6058	29,0	,04
·300	6204	29,3	,02
1·305	0·06351	+29,5	+,02
·310	6499	29,6	,02
·315	6647	29,7	,02
·320	6796	29,8	+,02
·325	6945	29,8	,00
1·330	0·07094	+29,8	,00
·335	7243	29,8	,00
·340	7392	29,7	−,02
·345	7540	29,6	,00
·350	7688	29,4	−,04
1·355	0·07834	+29,2	,00
·360	7979	29,1	−,02
·365	8124	28,8	,04
·370	8267	28,4	,04
·375	8408	28,1	,02
1·380	0·08548	+27,8	−,04
·385	8686	27,4	,04
·390	8821	26,9	,06
·395	8954	26,4	,04
·400	9085	25,9	,06
1·405	0·09213	+25,4	−,04
·410	9339	24,9	,06
·415	9461	24,2	,08
·420	9580	23,5	,06
·425	9696	22,9	,06
1·430	0·09808	+22,3	−,06
·435	·09918	21,6	,08
·440	·10024	20,8	,08
·445	·10125	20,0	,08
·450	·10223	19,2	,08
1·455	0·10317	+18,3	−,10
·460	·10405	17,5	,06
·465	·10491	16,7	,10
·470	·10572	15,8	,08
·475	·10648	14,9	,10
1·480	0·10720	+13,9	−,10
·485	·10786	12,9	,10
·490	·10848	12,0	,08
·495	·10906	11,1	,10
1·500	0·10958	+10,1	−,10

1	2	3	4
K	Equation	Δ $0^d \cdot 001$	½ Δ^2
d	°		
1·500	0·10958	+10,1	−,10
·505	·11006	9,1	,10
·510	·11048	8,0	,12
·515	·11085	7,0	,08
·520	·11117	6,0	,12
·525	·11144	4,9	,10
1·530	0·11166	+ 3,9	−,10
·535	·11182	2,8	,12
·540	·11193	1,8	,08
·545	·11199	+ 0,8	,12
·550	·11200	− 0,4	,12
1·555	0·11194	− 1,4	−,08
·560	·11184	2,4	,12
·565	·11169	3,5	,10
·570	·11149	4,6	,12
·575	·11122	5,6	,08
1·580	0·11092	− 6,6	−,12
·585	·11056	7,7	,10
·590	·11014	8,7	,10
·595	·10968	9,7	,10
·600	·10916	10,7	,10
1·605	0·10860	−11,6	−,08
·610	·10799	12,6	,12
·615	·10733	13,6	,08
·620	·10663	14,5	,10
·625	·10588	15,4	,08
1·630	0·10508	−16,3	−,10
·635	·10423	17,2	,08
·640	·10335	18,1	,10
·645	·10242	19,0	,08
·650	·10144	19,7	,06
1·655	0·10044	−20,4	−,08
·660	9940	21,2	,08
·665	9831	22,0	,08
·670	9719	22,7	,06
·675	9604	23,3	,06
1·680	0·09486	−24,0	−,08
·685	9363	24,7	,06
·690	9238	25,2	,04
·695	9111	25,7	,06
·700	8981	26,3	,06
1·705	0·08847	−26,8	−,04
·710	8712	27,2	,04
·715	8575	27,6	,04
·720	8436	28,0	,04
·725	8295	28,3	,02
1·730	0·08153	−28,6	−,04
·735	8009	28,9	,02
·740	7863	29,2	,04
·745	7716	29,5	−,02
1·750	0·07568	−29,6	,00

1	2	3	4
K	Equation	Δ $0^d \cdot 001$	½ Δ^2
d	°		
1·750	0·07568	−29,6	,00
·755	7420	29,6	,00
·760	7272	29,7	−,02
·765	7123	29,8	,00
·770	6974	29,8	,00
·775	6825	29,8	,00
1·780	0·06676	−29,7	+,02
·785	6528	29,6	,00
·790	6380	29,5	+,02
·795	6233	29,3	+,02
·800	6087	29,2	,00
1·805	0·05942	−29,0	+,04
·810	5798	28,6	,04
·815	5656	28,3	,02
·820	5515	27,9	,06
·825	5377	27,5	,02
1·830	0·05240	−27,2	+,04
·835	5104	26,7	,06
·840	4974	26,1	06
·845	4845	25,6	,04
·850	4718	25,1	,06
1·855	0·04595	−24,5	+,06
·860	4474	23,9	,06
·865	4356	23,2	,08
·870	4242	22,5	,06
·875	4132	21,9	,06
1·880	0·04024	−21,1	+,10
·885	3921	20,3	,08
·890	3821	19,5	,08
·895	3726	18,7	,08
·900	3635	17,9	,08
1·905	0·03547	−17,1	+,08
·910	3464	16,2	,10
·915	3386	15,2	,10
·920	3313	14,3	,08
·925	3243	13,4	,10
1·930	0·03179	−12,4	+,10
·935	3120	11,5	,08
·940	3065	10,5	,12
·945	3016	9,5	,08
·950	2971	8,5	,12
1·955	0·02932	− 7,5	+,08
·960	2896	6,5	,12
·965	2867	5,4	,10
·970	2843	4,3	,12
·975	2825	3,3	,08
1·980	0·02811	− 2,3	+,12
·985	2803	1,2	,10
·990	2800	− 0,1	,12
·995	2803	+ 0,9	,08
2·000	0·02810	+ 1,9	+,12

Applied Constant: +0°·07000.

Tables of Longitude, Latitude, and Radius Vector

XXIII Equations of Longitude XXIV

P	Equatio
d 0 00	00150
02	140
04	129
06	119
08	110
10	10
0 12	00094
14	88
16	83
18	79
20	77
0 22	0 00076
24	77
26	79
28	82
30	87
0 32	0 00094
34	101
36	109
38	118
40	1 8
0 42	0 00138
44	149
46	159
48	170
50	180
0 52	0 0189
54	197
56	05
58	211
60	17
0 62	0 00221
64	2 3
66	2 4
68	223
70	221
0 72	0 00 18
74	13
76	207
78	200
80	192
0 82	0 00183
84	173
86	163
88	152
90	142
0 92	0 00131
94	121
96	112
98	103
1 00	0 00096

Add d C t t 00 5

Q	Equation
d 0 00	0 00050
02	46
04	4
06	38
08	35
10	32
0 12	0 0 029
14	27
16	5
18	3
20	
0 22	0 00022
24	22
26	3
28	24
30	26
0 32	0 00029
34	31
36	35
38	38
40	42
0 42	0 0 46
44	50
46	54
48	57
50	61
0 52	0 00065
54	68
56	71
58	73
60	75
0 62	0 00077
64	78
66	78
68	78
70	77
0 72	0 00076
74	74
76	72
78	69
80	66
0 82	0 00062
84	59
86	55
88	51
90	47
0 92	0 00043
94	39
96	36
98	32
1 00	0 00030

Add d C t t 0005

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XXV Equation of Variation of Radius Vector, Doubled Argument A

1	2	3	1	2	3	1	2	3	1	2	3
A	Equation	Δ 0d·01	A	Equation	Δ 0d·01	A	Equation	Δ 0d·01	A	Equation	Δ 0d·01
d			d			d			d		
0·00	−·00868	0	1·00	+·00707	−12	2·00	−·00589	+22	3·00	+·00214	−28
·02	866	+ 2	·02	681	14	·02	544	23	·02	158	29
·04	860	4	·04	652	16	·04	496	25	·04	100	29
·06	849	6	·06	618	18	·06	446	26	·06	+ 42	29
·08	834	9	·08	582	19	·08	393	27	·08	− 17	30
·10	815	11	·10	542	21	·10	339	27	·10	76	30
0·12	−·00792	+13	1·12	+·00499	−22	2·12	−·00284	+28	3·12	−·00135	−30
·14	765	15	·14	454	23	·14	228	29	·14	194	29
·16	734	16	·16	406	25	·16	170	29	·16	252	29
·18	700	18	·18	356	26	·18	112	29	·18	308	28
·20	662	20	·20	304	27	·20	− 53	30	·20	363	27
0·22	−·00621	+21	1·22	+·00250	−28	2·22	+·00006	+29	3·22	+·00417	−27
·24	578	23	·24	195	28	·24	64	29	·24	469	25
·26	531	24	·26	138	29	·26	122	29	·26	518	24
·28	483	25	·28	80	29	·28	178	28	·28	566	23
·30	432	27	·30	+ 22	29	·30	234	28	·30	611	21
0·32	−·00379	+27	1·32	−·00036	−29	2·32	+·00289	+27	3·32	−·00651	−20
·34	324	28	·34	95	30	·34	342	26	·34	689	19
·36	268	29	·36	154	29	·36	393	25	·36	725	17
·38	210	29	·38	212	29	·38	441	24	·38	757	15
·40	151	29	·40	270	29	·40	487	22	·40	785	13
0·42	−·00093	+29	1·42	−·00326	−28	2·42	+·00530	+21	3·42	−·00808	−11
·44	− 34	30	·44	380	27	·44	571	20	·44	829	9
·46	+ 26	30	·46	432	26	·46	609	18	·46	845	7
·48	84	29	·48	483	25	·48	643	16	·48	857	5
·50	142	29	·50	531	24	·50	674	15	·50	865	3
0·52	+·00198	+28	1·52	−·00577	−22	2·52	+·00701	+13	3·52	−·00868	− 1
·54	254	28	·54	620	21	·54	724	11	·54	867	+ 2
·56	308	27	·56	661	20	·56	744	9	·56	861	4
·58	360	26	·58	698	18	·58	760	7	·58	851	6
·60	411	25	·60	732	16	·60	771	5	·60	838	8
0·62	+·00459	+23	1·62	−·00763	−15	2·62	+·00779	+ 3	3·62	−·00821	+10
·64	504	22	·64	790	13	·64	782	+ 1	·64	799	12
·66	546	21	·66	813	11	·66	782	− 1	·66	773	14
·68	586	19	·68	833	9	·68	777	4	·68	743	16
·70	623	17	·70	847	6	·70	768	6	·70	710	18
0·72	+·00655	+15	1·72	−·00858	− 5	2·72	+·00754	− 8	3·72	−·00673	+19
·74	684	14	·74	865	− 3	·74	737	10	·74	634	21
·76	710	12	·76	868	0	·76	716	11	·76	591	22
·78	732	10	·78	866	+ 2	·78	692	13	·78	545	24
·80	750	8	·80	861	4	·80	664	15	·80	496	25
0·82	+·00764	+ 6	1·82	−·00851	+ 6	2·82	+·00631	−17	3·82	−·00446	+26
·84	775	4	·84	837	8	·84	596	19	·84	393	27
·86	781	+ 2	·86	819	10	·86	557	20	·86	339	28
·88	783	0	·88	797	12	·88	515	22	·88	282	29
·90	780	− 2	·90	771	14	·90	471	23	·90	225	29
0·92	+·00774	− 4	1·92	−·00742	+16	2·92	+·00423	−24	3·92	−·00167	+29
·94	763	6	·94	708	18	·94	374	25	·94	108	30
·96	749	8	·96	671	19	·96	322	26	·96	− 49	30
·98	730	11	·98	632	21	·98	269	27	·98	+ 10	29
1·00	+·00707	−12	2·00	−·00589	+22	3·00	+·00214	−28	4·00	+·00068	29

Applied Constant: −·00040.

The Equation of this Table must be supplemented by those of Tables XXVI–XXIX.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

Equations of Variation of Radius Vector, Doubled

XXVI

B	Equation
d	
00	+ 00009
1	9
2	11
3	11
4	13
5	13
06	+ 00013
7	11
8	10
9	9
10	6
11	+ 00005
2	5
3	6
4	7
5	1
16	+ 00 11
7	13
8	13
9	13
20	12
21	+ 00011
2	10
3	9
4	9
25	+ 0001

Add 1C t t + oo

XXVII

C	Equation
00	+ 00001
1	
2	3
3	6
4	9
5	1
06	+ 00015
7	17
8	19
9	19
10	18
11	+ 00016
2	14
3	11
4	8
5	5
16	+ 00003
7	1
8	1
9	
20	+ 00004

Add dC t t + 000

XXVIII

D	Equation
d	
00	+ 00003
1	3
2	5
3	7
4	9
5	11
06	+ 00014
7	16
8	17
9	17
10	16
11	+ 0015
2	13
3	11
4	8
5	6
16	+ 00004
7	3
8	3
9	4
20	+ 00005

Ad1 1C t t + oo

XXIX

E	Equation
d	
00	+ 00007
1	7
2	8
3	9
4	10
5	11
06	+ 00012
7	12
8	13
9	13
10	13
11	+ 00012
2	11
3	10
4	9
5	8
16	+ 00008
7	7
8	7
9	7
20	+ 00008

All 1C t t + 000

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XXX Equation of Latitude **Argument K**

1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
K	Equation	Δ $0^d \cdot 001$	$\frac{1}{2}\Delta^2$	**K**	Equation	Δ $0^d \cdot 001$	$\frac{1}{2}\Delta^2$	**K**	Equation	Δ $0^d \cdot 001$	$\frac{1}{2}\Delta^2$	**K**	Equation	Δ $0^d \cdot 001$	$\frac{1}{2}\Delta^2$
d				d				d				d			
0·000	·35000	+120,3	,00	**0·250**	·61305	+ 76,2	−,16	**0·500**	·68217	− 24,5	−,22	**0·750**	·50588	−106,9	−,10
·005	·35601	120,3	,00	**·255**	·61682	74,6	,16	**·505**	·68089	26,7	,20	**·755**	·50051	107,9	,10
·010	·36203	120,3	,00	**·260**	·62051	72,8	,18	**·510**	·67950	28,8	,22	**·760**	·49509	108,9	,10
·015	·36804	120,1	−,02	**·265**	·62410	71,0	,18	**·515**	·67801	30,9	,20	**·765**	·48962	109,7	,08
·020	·37404	119,9	,02	**·270**	·62761	69,3	,16	**·520**	·67641	32,9	,20	**·770**	·48412	110,5	,08
·025	·38003	119,8	,02	**·275**	·63103	67,6	,18	**·525**	·67472	34,9	,20	**·775**	·47857	111,4	,08
0·030	·38602	+119,6	−,02	**0·280**	·63437	+ 65,8	−,18	**0·530**	·67292	− 37,0	−,22	**0·780**	·47298	−112,2	−,08
·035	·39199	119,4	,02	**·285**	·63761	64,0	,18	**·535**	·67102	39,1	,20	**·785**	·46735	112,9	,08
·040	·39796	119,1	,04	**·290**	·64077	62,2	,20	**·540**	·66901	41,1	,20	**·790**	·46169	113,6	,06
·045	·40390	118,8	,02	**·295**	·64383	60,3	,18	**·545**	·66691	43,1	,20	**·795**	·45599	114,3	,08
·050	·40984	118,5	,04	**·300**	·64680	58,5	,18	**·550**	·66470	45,1	,20	**·800**	·45026	115,0	,06
0·055	·41575	+118,1	−,04	**0·305**	·64968	+ 56,5	−,20	**0·555**	·66240	− 47,1	−,20	**0·805**	·44449	−115,7	−,06
·060	·42165	117,7	,04	**·310**	·65245	54,6	,18	**·560**	·65999	49,0	,18	**·810**	·43869	116,3	,06
·065	·42752	117,2	,06	**·315**	·65514	52,7	,20	**·565**	·65750	50,9	,20	**·815**	·43286	116,7	,04
·070	·43337	116,6	,06	**·320**	·65772	50,7	,20	**·570**	·65490	53,0	,20	**·820**	·42702	117,1	,06
·075	·43918	116,1	,04	**·325**	·66021	48,8	,18	**·575**	·65220	54,9	,18	**·825**	·42115	117,6	,04
0·080	·44498	+115,6	−,06	**0·330**	·66260	+ 46,9	−,20	**0·580**	·64941	− 56,7	−,20	**0·830**	·41526	−118,1	−,04
·085	·45074	114,9	,08	**·335**	·66490	45,0	,20	**·585**	·64653	58,6	,18	**·835**	·40934	118,5	,04
·090	·45647	114,3	,06	**·340**	·66710	43,0	,20	**·590**	·64355	60,5	,18	**·840**	·40341	118,9	,04
·095	·46217	113,7	,06	**·345**	·66920	40,9	,20	**·595**	·64048	62,3	,18	**·845**	·39745	119,1	,02
·100	·46784	112,9	,08	**·350**	·67119	38,9	,20	**·600**	·63733	64,1	,20	**·850**	·39150	119,3	,02
0·105	·47346	+112,1	−,08	**0·355**	·67309	+ 36,9	−,20	**0·605**	·63407	− 66,0	−,16	**0·855**	·38552	−119,7	−,04
·110	·47905	111,3	,08	**·360**	·67488	34,8	,22	**·610**	·63073	67,7	,18	**·860**	·37953	119,9	,00
·115	·48459	110,5	,08	**·365**	·67657	32,7	,20	**·615**	·62730	69,4	,18	**·865**	·37353	120,0	−,02
·120	·49010	109,7	,10	**·370**	·67815	30,6	,20	**·620**	·62379	71,2	,18	**·870**	·36753	120,2	−,02
·125	·49556	108,8	,08	**·375**	·67963	28,5	,22	**·625**	·62018	72,9	,16	**·875**	·36151	120,3	,00
0·130	·50098	+107,9	−,10	**0·380**	·68100	+ 26,5	−,20	**0·630**	·61650	− 74,6	−,18	**0·880**	·35550	−120,2	,00
·135	·50635	106,9	,10	**·385**	·68228	24,4	,22	**·635**	·61272	76,3	,16	**·885**	·34949	120,2	,00
·140	·51167	105,9	,10	**·390**	·68344	22,3	,20	**·640**	·60887	77,9	,16	**890**	·34348	120,2	,00
·145	·51694	104,9	,10	**·395**	·68451	20,2	,22	**·645**	·60493	79,5	,16	**·895**	·33747	120,3	,00
·150	·52216	103,8	,12	**·400**	·68546	18,0	,20	**·650**	·60092	81,1	,16	**·900**	·33145	120,2	+,02
0·155	·52732	+102,6	−,12	**0·405**	·68631	+ 15,9	−,22	**0·655**	·59682	− 82,7	−,16	**0·905**	·32545	−120,0	+,02
·160	·53242	101,5	,10	**·410**	·68705	13,8	,20	**·660**	·59265	84,2	,14	**·910**	·31945	119,8	,02
·165	·53747	100,2	,12	**·415**	·68769	11,8	,22	**·665**	·58840	85,7	,16	**·915**	·31347	119,6	,02
·170	·54244	99,0	,12	**·420**	·68823	9,6	,22	**·670**	·58408	87,2	,14	**·920**	·30749	119,4	,02
·175	·54737	97,9	,12	**·425**	·68865	7,4	,20	**·675**	·57968	88,7	,16	**·925**	·30153	119,0	,04
0·180	·55225	+ 96,8	−,14	**0·430**	·68897	+ 5,3	−,22	**0·680**	·57521	− 90,1	−,14	**0·930**	·29559	−118,8	+,02
·185	·55705	95,4	,12	**·435**	·68918	3,1	,22	**·685**	·57067	91,5	,14	**·935**	·28965	118,6	,04
·190	·56179	94,1	,14	**·440**	·68928	+ 1,0	,20	**·690**	·56606	93,0	,14	**·940**	·28373	118,1	,04
·195	·56646	92,8	,14	**·445**	·68928	− 1,1	,22	**·695**	·56137	94,3	,12	**·945**	·27784	117,6	,06
·200	·57107	91,4	,14	**·450**	·68917	3,3	,22	**·700**	·55663	95,6	,14	**·950**	·27197	117,1	,04
0·205	·57560	+ 89,9	−,14	**0·455**	·68895	− 5,5	−,22	**0·705**	·55181	− 96,9	−,12	**0·955**	·26613	−116,6	+,06
·210	·58006	88,5	,14	**·460**	·68862	7,6	,20	**·710**	·54694	98,0	,12	**·960**	·26031	116,1	,06
·215	·58445	87,3	,16	**·465**	·68819	9,7	,22	**·715**	·54201	99,2	,12	**·965**	·25452	115,5	,06
·220	·58877	85,6	,14	**·470**	·68765	11,9	,22	**·720**	·53702	100,4	,12	**·970**	·24876	114,8	,06
·225	·59301	83,9	,16	**·475**	·68700	14,0	,20	**·725**	·53197	101,6	,12	**·975**	·24384	114,2	,06
0·230	·59718	+ 82,6	−,16	**0·480**	·68625	− 16,2	−,22	**0·730**	·52686	−102,8	−,12	**0·980**	·23734	−113,5	+,08
·235	·60127	81,0	,16	**·485**	·68538	18,4	,20	**·735**	·52169	103,9	,10	**·985**	·23169	112,7	,08
·240	·60528	79,3	,16	**·490**	·68441	20,4	,22	**·740**	·51647	104,9	,10	**·990**	·22607	112,1	,06
·245	·60920	77,7	,16	**·495**	·68334	22,4	,20	**·745**	·51120	105,9	,10	**·995**	·22048	111,3	,10
0·250	·61305	+ 76,2	−,16	**0·500**	·68217	− 24,5	−,22	**0·750**	·50588	−106,9	−,10	**1·000**	·21494	−110,3	+,08

Added Constant: 0·35000.

For Eclipses, and as the argument of Table XXXVII, the Equation of this Table must be supplemented by those of Tables XXXI-XXXIV. For the other phenomena it must be also modified by Tables XXXV, XXXVI.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XXX *continued* — **Equation of Latitude** — **Argument K**

K	Equation	3 Δ 001	4 ½Δ	K	Equation	3 Δ 0d	4 ½Δ	K	Equation	3 Δ 0d 001	4 ½Δ	K	Equation	3 Δ 0 0 1	4 ½Δ
d 1 000	1494	− 110 3	+ 08	1 250	0 33	− 3 6	+ 2	1 500	07298	+ 69 6	+ 18	1 750	3 699	+ 120	00
005	0945	1 9 5	8	255	172	30 5	0	505	07651	71 3	16	755	33 99	1 1	+ 02
010	20399	1 8 7	1	260	0 5	28 5		510	8 11	73 0	18	760	339 0	1 0 3	00
015	19858	107 9	10	265	01887	6 4		515	08381	74 8	16	765	34502	1 1	0
020	193 1	106 9	10	270	01761	24 1	0	520	8759	76 5	18	770	35103	1 0	00
025	8,89	1 5 7	1	275	01646	1 9	2	525	9146	78 3	16	775	35704	1 0 3	00
1 030	18 63	− 104 7	+ 10	1 280	154	− 20 0	+ 20	1 530	9541	+ 79 6	+ 16	1 780	36306	+ 12 4	0
035	1774	1 3 7	10	285	1446	18 0	2	535	0994	81 3	16	785	36908	120 2	− 02
040	17226	10 6	1	290	0136	15 8		540	10354	83	14	790	375 8	119 9	0
045	16716	101 4	1	295	1 88	13 7	0	545	1077	84 3	16	795	38107	119 8	02
050	1621	100	1	300	01 5	11 5		550	11197	85 8	16	800	38706	119 6	
1 055	15714	99 0	+ 1	1 305	01173	− 9 3	+	1 555	11630	+ 87 3	+ 14	1 805	39303	+ 119 4	− 0
060	15	97 8	1	310	0113	7 2	20	560	1 070	88 8	14	810	39900	119 1	04
065	14736	96 7	1	315	11 1	5 1		565	12518	90 2	14	815	40494	118 7	04
070	14 55	95 4	14	320	1081	9	2	570	1 97	91 6	14	820	41087	118 3	04
075	13782	94 0	14	325	0107	− 8	0	575	13434	93 0	14	825	41677	117 9	04
1 080	13315	9 6	+ 14	1 330	1073	+ 1 3	+	1 580	13902	+ 94 3	+ 14	1 830	4 66	+ 117 5	− 04
085	1 856	91	12	335	01 85	3 5	2	585	14377	95 6	12	835	4 85	117 1	04
090	1 4 3	89 8	16	340	01108	5 6	20	590	14858	97 0	14	840	43437	116 6	06
095	11958	88 4	14	345	1141	7 7		595	15347	98 3	12	845	44018	116 0	06
100	1 519	87 1	14	350	01185	9 9	2	600	15841	99 4	12	850	44597	115 4	06
1 105	11087	− 85 6	+ 16	1 355	01 4	+ 12	+ 20	1 605	16341	+ 100 6	+ 12	1 855	45172	+ 114 8	− 06
110	10663	84	14	360	1307	14 3	2	610	16847	101 8	1	860	45745	114 2	08
115	10247	8 5	16	365	1383	16 3		615	17359	10 9	10	865	46314	113 6	06
120	09838	8 9	16	370	1470	18 4		620	17876	103 9	10	870	46881	112 9	08
125	9438	79 3	16	375	567	0 6	2	625	18398	1 5	1	875	47443	112	8
1 130	9 45	− 77 7	+ 16	1 380	1676	+ 22 7	+ 20	1 630	189 6	+ 106 1	+ 1	1 880	48 01	+ 111 1	− 08
135	8661	76 0	18	385	1794	4 8		635	19459	107 1	1	885	48554	110 3	08
140	08 85	74	18	390	019 4	6 9	20	640	19997	108 0	08	890	49104	109 5	10
145	07919	72 5	16	395	2 63	8 9	2	645	0539	108 9	10	895	49649	1 86	08
150	07560	70 9	16	400	2 13	31 0	0	650	21086	109 8	08	900	5 190	1 77	1
1 155	7 1	− 69 2	+ 18	1 405	373	+ 33 1	+ 0	1 655	1637	+ 110 6	+ 10	1 905	50726	+ 1 67	1
160	06868	67 5	18	410	544	35	20	660	2 192	111 5	08	910	51 57	105 7	10
165	6535	65 7	18	415	0 7 5	37 3	2	665	75	11 2	06	915	51783	104 7	10
170	6 11	63 8	18	420	0 917	39 3		670	23314	112 9	08	920	5 304	103 6	12
175	05897	6 0	18	425	3118	41 3	20	675	3881	113 6	08	925	52819	102 4	12
1 180	0559	− 60	+ 0	1 430	0333	+ 43 3	+ 2	1 680	445	+ 114 3	+ 06	1 930	533 8	+ 101 3	− 10
185	5 95	58 1	18	435	3551	45 3	20	685	5 26	115 0	06	935	5383	100	12
190	501	56 3	18	440	03783	47 1	18	690	5602	115 6	06	940	54330	99 0	1
195	0473	54 6	0	445	40 2	48 9	20	695	618	116 1	06	945	548 2	97 8	14
200	04464	52 6	0	450	04 7	51		700	26763	116 6	04	950	553 8	96 4	12
1 205	4 06	− 50 6	+ 18	1 455	04532	+ 53 1	+ 0	1 705	27348	+ 117 2	+ 6	1 955	55786	+ 95 1	− 14
210	3958	48 7	2	460	48 3	55 0	18	710	7935	117 7	04	960	56 59	93 9	12
215	03719	46 7		465	05 8	56 8	18	715	285 5	118 1	04	965	567 5	92 6	14
220	03491	44 7	20	470	05371	58 8		720	29116	118 5	04	970	57185	91	14
225	03 7	4 7	0	475	05670	6 7	18	725	29710	118 9	04	975	57637	89 8	14
1 230	03064	− 4 7	+ 20	1 480	05978	+ 6 5	+ 18	1 730	30305	+ 119 1	+ 0	1 980	58083	+ 88 3	− 16
235	02865	38 7	20	485	06 95	64 2	18	735	30902	119 4	02	985	585	86 8	14
240	677	36 7	2	490	06620	66 0	18	740	31499	119 7	04	990	58951	85 3	16
245	0 498	34 7	20	495	6955	67 8	18	745	3 099	120 0	+ 02	995	59373	83 7	14
1 250	02330	− 32 6	+ 2	1 500	07 98	+ 69 6	+ 18	1 750	32699	+ 1 0	00	2 000	59788	+ 82	− 16

Add d 0 t t 5000 F E lp d th g t f T bl XXXVII th Eq ti f thi T bl t l ppl t d by th f T bl XXXI XXXIV F tl th pl m itm tb l m difl d by T ll XXXV XXXVI

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

Equations of Latitude

XXXI

1	2	3	1	2	3
L	Equation	Δ 0d·01	L	Equation	Δ 0d·01
d			d		
0·00	0·00300	+ 11	1·00	0·00180	− 10
·02	321	11	·02	161	9
·04	342	10	·04	143	9
·06	363	11	·06	126	9
·08	384	10	·08	109	8
·10	404	10	·10	93	8
0·12	0·00423	+ 9	1·12	0·00078	− 7
·14	442	9	·14	65	7
·16	460	9	·16	52	6
·18	478	9	·18	41	5
·20	494	8	·20	32	5
0·22	0·00510	+ 8	1·22	0·00023	− 4
·24	524	7	·24	16	3
·26	538	7	·26	10	3
·28	550	6	·28	6	2
·30	561	5	·30	3	− 1
0·32	0·00570	+ 4	1·32	0·00002	0
·34	578	4	·34	2	+ 1
·36	585	3	·36	4	1
·38	591	3	·38	7	2
·40	595	2	·40	12	3
0·42	0·00597	+ 1	1·42	0·00019	+ 4
·44	598	0	·44	26	4
·46	597	− 1	·46	35	5
·48	595	1	·48	46	6
·50	592	2	·50	57	6
0·52	0·00587	− 3	1·52	0·00070	+ 7
·54	580	4	·54	84	7
·56	572	4	·56	99	8
·58	563	5	·58	115	8
·60	552	6	·60	132	9
0·62	0·00540	− 6	1·62	0·00150	+ 9
·64	527	7	·64	169	10
·66	513	8	·66	188	10
·68	498	8	·68	208	10
·70	481	9	·70	229	10
0·72	0·00464	− 9	1·72	0·00249	+ 10
·74	446	9	·74	270	11
·76	427	10	·76	292	11
·78	408	10	·78	313	10
·80	388	10	·80	334	11
0·82	0·00367	− 11	1·82	0·00355	+ 10
·84	346	10	·84	375	10
·86	325	11	·86	396	10
·88	304	10	·88	416	10
·90	283	11	·90	435	9
0·92	0·00262	− 10	1·92	0·00453	+ 9
·94	241	11	·94	471	9
·96	220	10	·96	488	8
·98	200	10	·98	504	8
1·00	0·00180	− 10	2·00	0·00519	+ 7

Added Constant: 0°·00300.

XXXII

1	2
M	Equation
d	
0·00	0·00150
·04	166
·08	181
·12	195
·16	209
·20	222
0·24	0·00233
·28	242
·32	250
·36	255
·40	259
0·44	0·00260
·48	259
·52	256
·56	251
·60	243
0·64	0·00234
·68	223
·72	211
·76	197
·80	182
0·84	0·00167
·88	152
·92	136
·96	121
1·00	106
1·04	0·00092
·08	80
·12	69
·16	59
·20	51
1·24	0·00045
·28	42
·32	40
·36	41
·40	44
1·44	0·00049
·48	56
·52	65
·56	76
·60	88
1·64	0·00101
·68	116
·72	131
·76	147
·80	162
1·84	0·00177
·88	192
·92	206
·96	219
2·00	0·00230

Added Constant: 0°·00150.

XXXIII

1	2
N	Equation
d	
0·00	0·00025
·04	28
·08	31
·12	34
·16	37
·20	40
0·24	0·00042
·28	44
·32	46
·36	47
·40	48
0·44	0·00048
·48	48
·52	47
·56	46
·60	44
0·64	0·00042
·68	40
·72	38
·76	35
·80	32
0·84	0·00029
·88	25
·92	22
·96	19
1·00	16
1·04	0·00013
·08	10
·12	8
·16	6
·20	4
1·24	0·00003
·28	2
·32	2
·36	2
·40	3
1·44	0·00004
·48	5
·52	7
·56	9
·60	12
1·64	0·00015
·68	18
·72	21
·76	24
·80	28
1·84	0·00031
·88	34
·92	37
·96	39
2·00	0·00042

Added Constant: 0°·00025.

XXXIV

1	2
O	Equation
d	
0·0	0·04525
·1	4527
·2	4529
·3	4530
·4	4531
·5	4531
0·6	0·04530
·7	4529
·8	4527
·9	4525
1·0	4523
1·1	0·04521
·2	4520
·3	4519
·4	4519
·5	4520
1·6	0·04522
·7	4524
·8	4526
·9	4528
2·0	4529

Added Constant: 0°·04525.

SATELLITE I

Tables of Longitude, Latitude, and Radius Vector

XXXV—Occultations and Transits

To correct for the Jovicentric Latitude of the Earth the Satellite s I atitude as derived from Tables XXX–XXXVI must be supplemented by the term—

$$\pm\ 143127\ R_1 \sin(\bigcirc - \Omega)/\Delta \left\{ \begin{matrix} +\mathrm{Oc} \\ -\mathrm{Tr} \end{matrix} \right.$$
$$(9\ 15572\ )$$

where R_1 Δ are the Geocentric Distances of the Sun and Jupiter respectively and Ω is the Ascending Node of Jupiter s Orbit on the Ecliptic

The natural sign to apply for Occultations

The reversed sign to apply for Transits

The value of Ω is given in Table C

XXXVI

Correction of Latitude for Shadows and Transits

Lat	Corr Sh Tr
0 00	− 0 00044
04	39
08	35
12	31
16	6
20	2
0 24	− 0 017
28	13
32	9
36	− 4
40	0
0 44	+ 0 004
48	9
52	13
56	17
60	
0 64	+ 0 0 6
68	31
72	35
76	39
0 80	+ 00044

Thi C ti t b ppli d t L tit d d ri d f m T bl XXX XXXIV b f i g A g m t f S mi l t i Sh d w d T it

XXXVII

Angle above Jupiter s Orbit

		3	4
Lat	A gle	Lat	Δ o I
0 00	− 3 655 +	0 80	911
02	3 47 9	78	912
04	3 905	76	912
06	3 1081	74	912
08	2 9256	72	913
10	7430	70	913
0 12	− 5604 +	0 68	913
14	2 3777	66	914
16	2 1950	64	914
18	01 3	62	914
20	1 8295	60	914
0 22	− 1 6466 +	0 58	915
24	1 4637	56	915
26	1 808	54	915
28	1 0979	52	915
30	9150	50	915
0 32	− 0 7320 +	0 48	915
34	0 5490	46	915
36	0 3660	44	915
38	− 0 183 +	42	915
0 40	0 000	0 40	915

Thi T bl l w th A gl f th S t llit b J pit O bit whi h p d t th Su f tl Eq ti t k f m T bl XXX XXXIV

SATELLITE I

Tables

of the

Synodic Motion,

Duration of the Phenomena of Eclipse,

Occultation, Transit and Shadow-Transit,

with

Equations for Reduction to the Middle,

Corrections for Phase

and the

Light-Curve of Eclipse

XXXVIII

Table of Synodic Motion

1	2	1	2	1	2	1	2
Angle	Value	Angle	Value	Angle	Value	Angle	Value
°	d	°	d	°	d	°	d
·000	·000000	·025	·000123	·050	·000246	·075	·000369
1	5	26	128	51	251	76	374
2	10	27	133	52	256	77	379
3	15	28	138	53	261	78	383
4	20	29	143	54	265	79	388
5	25	30	147	55	270	80	393
·006	·000029	·031	·000152	·056	·000275	·081	·000398
7	34	32	157	57	280	82	403
8	39	33	162	58	285	83	408
9	44	34	167	59	290	84	413
10	49	35	172	60	295	85	418
·011	·000054	·036	·000177	·061	·000300	·086	·000423
12	59	37	182	62	305	87	428
13	64	38	187	63	310	88	433
14	69	39	192	64	315	89	438
15	74	40	197	65	320	90	442
·016	·000079	·041	·000202	·066	·000324	·091	·000447
17	84	42	206	67	329	92	452
18	88	43	211	68	334	93	457
19	93	44	216	69	339	94	462
20	98	45	221	70	344	95	467
·021	·000103	·046	·000226	·071	·000349	·096	·000472
22	108	47	231	72	354	97	477
23	113	48	236	73	359	98	482
24	118	49	241	74	364	99	487
·025	·000123	·050	·000246	·075	·000369	·100	·000492

XXXIX

1	2
Angle	Value
°	d
0·0	·000000
·1	492
·2	983
·3	1475
·4	1967
·5	2458
0·6	·002950
·7	3441
·8	3933
·9	4425
1·0	·004916

These tables show the time taken to describe a given angle, with the Mean Synodic Motion. They are to be used for converting into time the Complement or excess of Jupiter's longitude over that of the Satellite at an assumed approximate time of conjunction.

To allow for the *true* Synodic Motion modify the entry of the table by applying to it its product by the Variation as taken from Tables XXV-XXIX.

Tables of the Phenomena

XL

Semiduration

Lat	Ecl Oc	3 Δ 0.001	4 Corr Sh Tr	Lat
000	0 043653	+ 8	−49	800
004	43736	20 8	49	796
008	43819	20 5	49	792
012	43900	0 1	49	788
016	43980	2 0	49	784
020	44 60	19 8	49	780
024	44138	+19 4	−49	776
028	44 15	19 1	49	772
032	44 91	18 9	50	768
036	44366	18 8	5	764
040	44441	18 6	5	760
044	044515	+18 4	−50	756
048	44588	18	50	752
052	44659	18	50	748
056	4473	17 8	50	744
060	448	17 5	5	740
064	044869	+17 0	−50	736
068	44937	16 8	50	732
072	45 3	16 8	5	728
076	45070	16 5	50	724
080	45135	16 3	50	720
084	0 045199	+16 0	−5	716
088	45 63	15 8	51	712
092	453 6	15 5	51	708
096	45387	15 3	51	704
100	45448	15 0	51	700
104	0 045508	+14 8	−51	696
108	45567	14 8	51	692
112	456 5	14 5	51	688
116	4568	14 3	51	684
120	45739	14 0	51	680
124	0 045794	+13 8	−51	676
128	45849	13 6	51	672
132	45903	13 3	51	668
136	45955	13 0	51	664
140	460 8	12 8	51	660
144	0 046058	+1 8	−5	656
148	46109	12 5	5	652
152	46159	1 3	52	648
156	46 07	1	5	644
160	46 56	11 8	5	640
164	0 04630	+11 5	−52	636
168	46349	11 5	52	632
172	46394	11 3	5	628
176	46438	11 0	5	624
180	4648	10 8	52	620
184	0 0465 5	+10 5	−5	616
188	46567	10 3	52	612
192	46608	10 3	52	608
196	46648	10 0	52	604
200	0 046688	+ 9 8	−52	600

Lat	Ecl Oc	3 Δ 0.001	4 Corr Sh Tr	Lat
200	0 46688	+ 9 8	−5	600
204	467 6	9 8	5	596
208	46764	9 5	5	592
212	4680	9 3	5	588
216	46838	9 0	5	584
220	46874	8 8	5	580
224	046908	+ 8 5	−52	576
228	4694	8 5	5	572
232	46975	8 3	53	568
236	47007	8 0	53	564
240	47 39	7 8	53	560
244	0 47070	+ 7 8	−53	556
248	47100	7 5	53	552
252	47129	7 3	53	548
256	47157	7 0	53	544
260	47185	6 8	53	540
264	0 047 11	+ 6 5	−53	536
268	47237	6 5	53	532
272	47 62	6 3	53	528
276	47287	6 0	53	524
280	47310	5 8	53	520
284	047333	+ 5 5	−53	516
288	47355	5 5	53	512
292	47376	5 3	53	508
296	47396	5 0	53	504
300	4741	5	53	500
304	0 047435	+ 4 5	−53	496
308	47453	4 5	53	492
312	47471	4 3	53	488
316	47488	4 0	53	484
320	47503	4 0	53	480
324	047518	+ 3 8	−53	476
328	47533	3 5	53	472
332	47546	3 5	53	468
336	47558	3 3	53	464
340	47570	3 0	53	460
344	0 047582	+ 2 8	−53	456
348	47592	5	53	452
352	4760	2 3	53	448
356	47610	2 3	53	444
360	47618	0	53	440
364	0 0476 6	+ 1 8	−53	436
368	47632	1 5	53	432
372	47638	1 3	53	428
376	47643	1 3	53	424
380	47647	1 0	53	420
384	0 047651	+ 0 8	−53	416
388	47653	0 5	53	412
392	47655	0 5	53	408
396	47656	+ 3	53	404
400	0 047657	0	−53	400

S lt t dO t t 300 Th A g m ti tl L t t d l l df m T bl XXX XXXVI F Sh d w d T t th tl C l 4 m t b ppl d t tl t i C l Tl try m t b t d l by tl E1 ti f T ll XLI XLIV F Sh d w l T it t m t l b t l f J p t Ph by T bl LI

Equations of Semiduration

XLI

Ecl Oc	K	3 Sh Tr
0 000044	0 0	00 002
45	1	8
46	2	3
47	3	37
46	4	45
46	5	45
0 00047	0 6	000035
46	7	1
45	8	6
44	9	2
45	1 0	10
0 000047	1 1	0 0000 5
47	2	39
46	3	46
46	4	44
47	5	33
000046	1 6	0 000018
45	7	5
44	8	3
45	9	1
0 000047	2 0	0 000028

All 1C t t 00 44

XLII

a	Ecl Oc
0	+ 000003
500	+
1000	0
1500	−
2000	− 3
2500	− 000003
3000	− 1
3500	+ 1
4000	+ 3
4500	+ 0000 3

XLIII

Ec Sh	β	3 Oc	4 Tr
6	0	11	1
9	50	1	6
1	100	10	10
9	150	5	12
6	200	1	11
3	250	0	6
2	300	2	2
4	350	7	1
6	400	11	1

Th it q l 0000
Add d C ta t 00006

SATELLITE I

Tables of the Phenomena

 Equation of the Semiduration Ecl., Oc., Sh., Tr.

Lat. / Var.	·00 / ·80	·02 / ·78	·04 / ·76	·06 / ·74	·08 / ·72	·10 / ·70	·12 / ·68	·14 / ·66	·16 / ·64	·18 / ·62	·20 / ·60	·22 / ·58	·24 / ·56	·26 / ·54	·28 / ·52	·30 / ·50	·32 / ·48	·34 / ·46	·36 / ·44	·38 / ·42	·40
−·0100	75	68	62	56	51	46	42	37	33	30	27	24	22	19	17	16	14	13	12	12	12
96	82	76	70	64	59	55	50	46	43	39	36	33	31	29	27	25	24	23	22	22	22
92	89	83	77	72	67	62	58	54	51	47	45	42	40	38	36	34	33	32	31	31	31
88	96	90	85	80	75	71	67	63	60	57	54	51	49	47	46	44	43	42	41	41	41
84	103	97	92	87	83	79	75	71	68	65	62	60	58	56	54	52	52	51	50	50	50
80	110	105	100	95	91	87	84	80	77	74	72	69	68	66	64	63	62	61	60	60	60
−·0076	117	112	107	103	99	95	91	88	85	83	80	78	76	74	73	72	71	70	69	69	69
72	124	119	115	111	107	103	100	97	94	92	90	88	86	84	83	82	81	80	79	79	79
68	131	126	122	118	115	111	108	105	103	100	98	96	94	93	92	90	90	89	88	88	88
64	138	134	130	126	123	120	117	114	112	109	107	106	104	103	101	100	100	99	98	98	98
60	145	141	137	134	131	127	125	122	120	118	116	114	113	111	110	109	108	108	107	107	107
−·0056	152	148	145	142	139	136	133	131	129	127	125	124	122	121	120	119	118	118	117	117	117
52	159	155	152	149	146	144	141	139	137	135	134	132	131	130	129	128	127	127	126	126	126
48	166	163	160	157	154	152	150	148	146	145	143	142	141	139	139	138	137	137	136	136	136
44	173	170	167	165	162	160	158	156	154	153	152	150	149	148	147	147	146	146	145	145	145
40	180	177	175	173	170	169	167	165	164	162	161	160	159	158	157	156	156	155	155	155	155
−·0036	187	184	182	180	178	176	175	173	172	170	169	168	167	167	166	165	165	164	164	164	164
32	194	192	190	188	186	185	183	182	181	180	179	178	177	176	176	175	175	174	174	174	174
28	201	199	197	196	194	193	191	190	189	188	187	186	186	185	184	184	184	183	183	183	183
24	208	206	205	204	202	201	200	199	198	197	197	196	195	195	194	194	194	193	193	193	193
20	215	213	212	211	210	209	208	207	206	206	205	204	204	203	203	203	202	202	202	202	202
−·0016	222	221	220	219	218	217	217	216	215	215	214	214	214	213	213	213	212	212	212	212	212
12	229	228	227	227	226	225	225	224	224	223	223	222	222	222	222	221	221	221	221	221	221
8	236	235	235	235	234	234	233	233	233	232	232	232	232	232	231	231	231	231	231	231	231
−·0004	243	242	242	242	242	241	241	241	241	241	241	240	240	240	240	240	240	240	240	240	240
0	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
+·0004	257	258	258	258	258	259	259	259	259	259	259	260	260	260	260	260	260	260	260	260	260
8	264	265	265	266	266	266	267	267	267	268	268	268	268	268	269	269	269	269	269	269	269
12	271	272	273	274	274	275	275	276	276	277	277	278	278	278	278	279	279	279	279	279	279
16	278	279	280	281	282	283	283	284	285	285	286	286	286	287	287	287	288	288	288	288	288
20	285	287	288	289	290	291	292	293	294	294	295	296	296	297	297	297	298	298	298	298	298
+·0024	292	294	295	297	298	299	300	301	302	303	303	304	305	305	306	306	306	307	307	307	307
28	299	301	303	305	306	307	309	310	311	312	313	314	314	315	316	316	316	317	317	317	317
32	306	308	310	312	314	315	317	318	319	320	321	322	323	324	324	325	325	326	326	326	326
36	313	316	318	320	322	324	325	327	328	330	331	332	333	333	334	335	335	336	336	336	336
40	320	323	325	327	330	331	333	335	336	338	339	340	341	342	343	344	344	345	345	345	345
+·0044	327	330	333	335	338	340	342	344	346	347	348	350	351	352	353	353	354	354	355	355	355
48	334	337	340	343	346	348	350	352	354	355	357	358	359	361	361	362	363	363	364	364	364
52	341	345	348	351	354	356	359	361	363	365	366	368	369	370	371	372	373	373	374	374	374
56	348	352	355	358	362	364	367	369	371	373	375	376	378	379	380	381	382	382	383	383	383
60	355	359	363	366	370	373	375	378	380	382	384	386	387	389	390	391	392	392	393	393	393
+·0064	362	366	370	374	377	380	383	386	388	391	393	394	396	397	399	400	400	401	402	402	402
68	369	374	378	382	385	389	392	395	397	400	402	404	406	407	408	410	410	411	412	412	412
72	376	381	385	389	393	397	400	403	406	408	410	412	414	416	417	418	419	420	421	421	421
76	383	388	393	397	401	405	409	412	415	417	420	422	424	426	427	428	429	430	431	431	431
80	390	395	400	405	409	413	416	420	423	426	428	431	432	434	436	437	438	439	440	440	440
+·0084	397	403	408	413	417	421	425	429	432	435	438	440	442	444	446	448	449	449	450	450	450
88	404	410	415	420	425	429	433	437	440	443	446	449	451	453	454	456	457	458	459	459	459
92	411	417	423	428	433	438	442	446	449	453	455	458	460	462	464	466	467	468	469	469	469
96	418	424	430	436	441	445	450	454	457	461	464	467	469	471	473	475	476	477	478	478	478
+·0100	425	432	438	444	449	454	458	463	467	470	473	476	478	481	483	484	486	487	488	488	488

The unit in this Table equals $0^{d}\cdot000001$. Added Constant: $+0^{d}\cdot000250$.

SATELLITE I

Tables of the Phenomena

XLV Reductions to Middle Argument K

Ecl Oc	Δ	3 K	4 Sh Tr	5 Δ
− 000034	− 29	**0 00**	− 000 66	− 38
62	8	**01**	103	38
91	9	**02**	41	38
119	8	**03**	178	37
146	7	**04**	14	36
173	7	**05**	249	35
− 000199	− 6	**0 06**	− 00 83	− 34
2 4	5	**07**	316	33
249	5	**08**	349	3
73	3	**09**	380	30
95	1	**10**	409	8
− 0 315	− 20	**0 11**	− 000436	− 7
335	19	**12**	46	5
353	17	**13**	486	3
369	16	**14**	5 7	0
384	14	**15**	5 6	18
− 0 0397	− 12	**0 16**	− 00054	− 15
407	10	**17**	556	13
416	9	**18**	568	12
4 4	7	**19**	579	9
429	4	**20**	586	5
− 00043	−	**0 21**	− 000589	− 3
433	− 1	**22**	591	− 1
43	+ 1	**23**	59	+
43	4	**24**	587	5
4 5	6	**25**	580	8
− 0 418	+ 8	**0 26**	− 00571	+ 1
41	10	**27**	56	1
399	1	**28**	546	15
387	13	**29**	53	17
373	15	**30**	512	0
− 000357	+ 17	**0 31**	− 0491	+ 23
339	19	**32**	467	5
3		**33**	441	6
30	1	**34**	4 5	27
78	23	**35**	387	30
− 000 54	+ 4	**0 36**	− 0 356	+ 3
30	5	**37**	3 4	33
05	26	**38**	91	34
179	27	**39**	57	35
5	27	**40**	2 2	36
− 000125	+ 8	**0 41**	− 000186	+ 37
97	28	**42**	149	37
69	9	**43**	112	38
4	9	**44**	74	38
− 12	8	**45**	− 37	37
+ 000016	+ 28	**0 46**	000000	+ 37
44	28	**47**	+ 37	37
7	28	**48**	73	36
99	7	**49**	1 9	35
+ 0001 5	+ 6	**0 50**	+ 000143	+ 34

Ecl O	Δ	3 K	4 Sh Tr	5 Δ
			d	
+ 000125	+ 6	**0 50**	+ 00 143	+ 34
151	26	**51**	177	34
176	4	**52**	1	32
199	23	**53**	241	31
2	2	**54**	271	29
243	1	**55**	98	7
+ 00 63	+ 19	**0 56**	+ 0003 4	+ 5
281	18	**57**	348	3
298	16	**58**	370	1
31	14	**59**	389	18
3 5	13	**60**	4 6	17
+ 00337	+ 11	**0 61**	+ 0 0422	+ 15
347	9	**62**	435	1
355	7	**63**	446	9
360	4	**64**	45	5
363	3	**65**	456	4
+ 000365	+ 1	**0 66**	+ 000459	⊦
365	− 1	**67**	459	−
363	3	**68**	456	4
359	6	**69**	451	7
35	8	**70**	442	10
+ 000344	− 9	**0 71**	+ 000431	− 12
334	11	**72**	418	15
3 2	13	**73**	4 2	17
308	15	**74**	384	0
9	17	**75**	363	22
+ 000 75	− 18	**0 76**	+ 000340	− 4
256		**77**	315	6
36	1	**78**	289	7
213		**79**	61	9
19	24	**80**	31	31
+ 000168	5	**0 81**	+ 000200	− 32
143	26	**82**	167	34
117	27	**83**	133	35
90	27	**84**	97	36
63	8	**85**	61	37
+ 0 035	− 28	**0 86**	+ 000 4	− 37
+ 7	8	**87**	− 12	37
− 1	8	**88**	49	37
49	29	**89**	86	38
78	29	**90**	124	38
− 0 106	− 28	**0 91**	− 000161	− 37
133	7	**92**	197	36
161	28	**93**	233	36
188	26	**94**	268	34
13	25	**95**	301	33
− 000238	− 25	**0 96**	− 0 0334	− 33
262	3	**97**	366	31
284	22	**98**	395	29
306	1	**99**	423	28
− 0 0326	− 19	**1 00**	− 000450	− 26

S bt t 1 O t t Thi T bl i 1 d t tp ti f th Eq ti f Light (I d) Th E t y must b ppl t d by tl Eq t f 1 bl XLVI L Ih wh l tb rr t d by ddi g t it lf it p d t by th V i ti d w fr T bl XXV XXIX F Sh d d T it it m t l b t d f J plt Ph by T bl LI

Tables of the Phenomena

XLV *continued* — **Reductions to Middle** — **Argument K**

1	2	3	4	5
Ecl., Oc.	Δ	K	Sh., Tr.	Δ
d		d	d	
− ·000326	− 19	1·00	− ·000450	− 26
345	18	·01	475	24
362	17	·02	498	22
378	15	·03	518	19
392	13	·04	535	17
402	11	·05	550	14
− ·000412	− 10	1·06	− ·000563	− 13
421	8	·07	575	11
427	6	·08	584	7
431	3	·09	588	4
433	− 2	·10	591	− 2
− ·000433	0	1·11	− ·000591	+ 1
431	+ 3	·12	589	4
428	5	·13	584	7
422	7	·14	576	9
415	9	·15	565	11
− ·000404	+ 11	1·16	− ·000553	+ 14
392	13	·17	538	16
380	14	·18	521	19
365	16	·19	502	22
348	18	·20	478	24
− ·000329	+ 20	1·21	− ·000453	+ 26
310	21	·22	427	27
289	22	·23	401	29
265	24	·24	371	31
241	25	·25	339	33
− ·000217	+ 26	1·26	− ·000307	+ 34
191	27	·27	273	35
164	27	·28	238	36
138	28	·29	203	37
110	28	·30	166	37
− ·000082	+ 29	1·31	− ·000129	+ 38
53	29	·32	91	38
− 25	29	·33	54	38
+ 3	28	·34	− 17	37
31	28	·35	+ 20	37
+ ·000059	+ 28	1·36	+ ·000057	+ 37
87	28	·37	93	36
113	27	·38	127	35
139	26	·39	161	34
165	25	·40	195	33
+ ·000188	+ 24	1·41	+ ·000227	+ 32
212	23	·42	258	30
233	22	·43	286	28
254	20	·44	313	26
273	19	·45	337	24
+ ·000291	+ 17	1·46	+ ·000360	+ 22
306	15	·47	381	20
319	14	·48	399	18
332	12	·49	415	16
+ ·000343	+ 10	1·50	+ ·000430	+ 14

1	2	3	4	5
Ecl., Oc.	Δ	K	Sh., Tr.	Δ
d		d	d	
+ ·000343	+ 10	1·50	+ ·000430	+ 14
352	8	·51	442	11
358	6	·52	450	7
362	4	·53	454	5
365	+ 2	·54	458	+ 3
365	0	·55	460	0
+ ·000364	− 2	1·56	+ ·000458	− 3
362	5	·57	454	6
356	7	·58	447	9
348	9	·59	436	11
339	10	·60	425	14
+ ·000328	− 12	1·61	+ ·000410	− 16
315	14	·62	393	19
300	16	·63	373	21
283	18	·64	351	23
265	19	·65	327	25
+ ·000246	− 21	1·66	+ ·000301	− 27
225	22	·67	274	28
203	23	·68	245	30
179	25	·69	215	32
155	26	·70	183	33
+ ·000129	− 27	1·71	+ ·000149	− 35
102	27	·72	113	36
76	28	·73	78	37
48	28	·74	41	37
+ 20	28	·75	+ 5	37
− ·000008	− 28	1·76	− ·000032	− 37
36	29	·77	69	38
65	29	·78	107	38
93	29	·79	144	38
120	28	·80	181	37
− ·000148	− 28	1·81	− ·000217	− 36
176	27	·82	252	35
202	26	·83	286	34
227	25	·84	319	33
251	24	·85	352	32
− ·000274	− 23	1·86	− ·000382	− 30
296	22	·87	410	29
317	20	·88	438	27
336	19	·89	464	25
354	17	·90	488	23
− ·000370	− 16	1·91	− ·000509	− 20
385	14	·92	528	18
398	12	·93	543	15
408	10	·94	557	13
417	9	·95	569	12
− ·000425	− 7	1·96	− ·000580	− 9
429	4	·97	586	5
432	2	·98	589	3
433	− 1	·99	591	− 1
− ·000432	+ 2	2·00	− ·000590	+ 2

Applied Constant: −0·000050. This Table includes a constant portion of the Equation of Light (see *Introduction*). The Entry must be supplemented by the Equations of Tables XLVI–L. The whole must be corrected by adding to itself its product by the Variation as drawn from Tables XXV–XXIX. For Shadows and Transits it must also be corrected for Jupiter's Phase by Table LI.

SATELLITE I

Tables of the Phenomena

XLVI Equation of the Reduction Occultations only

γ \ K	0^d0	0^d1	0^d2	0^d3	0^d4	0^d5	0^d6	0^d7	0^d8	0^d9	1^d0	1^d1	1^d2	1^d3	1^d4	1^d5	1^d6	1^d7	1^d8	1^d9	2^d0
d																					
0	+3	+3	+	+1	0	−1	−	−	3	3	3	−	−1	0	+	1	+2	+3	+3	+3	+2
20	+5	+23	+19	+1	+4	−5	−3	−9	−3	−5	−3	18	−11	−2	+6	+14	+0	+24	+4	+2	+17
40	+43	+41	+33	+1	+7	−9	−3	34	−41	−43	−4	31	−19	−4	+11	+25	+36	+42	+43	+39	+30
60	+57	+54	+43	+8	+9	−1	−30	−45	−55	57	−5	41	−5	−5	+15	+33	+47	+56	+57	+51	+39
80	+64	+6	+49	+31	+10	−13	−34	−51	−61	−64	59	−46	−8	−6	+17	+37	+53	+6	+64	+57	+44
100	+64	+60	+48	+31	+10	−13	−34	−51	61	−63	−58	−46	−28	−6	+16	+37	+53	+62	+63	+57	+43
120	+56	+5	+4	+27	+8	−11	−30	−44	−53	−56	−51	−40	4	−5	+14	+3	+46	+54	+55	+50	+38
140	+41	+39	+31	+0	+6	−8	−	−33	−39	−41	−38	−30	−18	4	+11	+4	+34	+4	+41	+37	+28
160	+22	+1	+17	+11	+3	−4	−1	−17	−21	−		−16	−10	−2	+6	+13	+18	+21	+	+0	+15
180		0		0		0	0		0	0		0	0	0		0	0	0			0
200	2	0	−16	−11	3	+4	+12	+17	+1	+	+	+16	+9	+	−6	1	−18	−1	−	−19	−15
220	41	−39	−31	−	−6	+8	+2	+33	+39	+41	+38	+30	18	+4	−11	−4	−34	−40	−41	37	8
240	−56	−5	−4	−7	8	+11	+30	+44	+53	+56	+51	+4	4	+5	−14	3	−4	−54	55	−50	−38
260	−64	−60	−48	−31	−10	+13	+34	+51	+61	+64	+58	+46	+28	+6	−16	−37	−53	−6	−63	57	−43
280	−64	−60	−49	31	−10	+13	+34	+51	+61	64	+59	+46	+8	+6	−17	−37	−54	−63	−65	−58	−44
300	−57	−54	−43	−8	−9	+	+30	+45	+55	+57	+53	+41	+5	+5	−15	−33	−47	−56	−57	−51	−39
320	−44	−41	33	−1	−7	+9	+23	+35	+4	+43	+4	+31	+19	+4	−11	−25	−36	4	−43	39	−3
340	−25	−3	−19	−12	−4	+5	+13	+2	+4	+5	+23	+18	+11	+	−6	−14	−0	−4	−5	22	−17
360	−3	−3	−2	1	0	+1	+	+2	+3	+3	+3	+2	+1	0	−1	−2	−3	−3	−3	−3	−
380	+19	+18	+14	+9	+3	−4	−10	−15	−18	19	−17	−14	−8	−	+5	+11	+16	+18	+19	+17	+13
400	+39	+36	+9	+19	+6	−8	−1	−31	−37	−39	−36	−8	−17	−4	+10	+2	+3	+38	+39	+35	+6

XLVII Equation of the Reduction Transits only

γ \ K	0^d0	0^d1	0^d2	0^d3	0^d4	0^d5	0^d6	0^d7	0^d8	0^d9	1^d0	1^d1	1^d2	1^d3	1^d4	1^d5	1^d6	1^d7	1^d8	1^d9	2^d0
0	−4	−4	−3	−2	−1	+1	+	+3	+4	+4	+3	+3	+2	0	−1	−2	−3	−4	−4	3	−3
20	−33	−31	24	16	−5	+7	+17	+6	+31	+33	+30	+3	+14	+3	−8	−19	−27	−31	−33	−29	−2
40	−57	−54	−43	−8	−9	+1	+31	+45	+55	+57	+53	+41	+5	+5	−15	−33	47	−55	−57	−51	−39
60	−76	−71	−57	−37	−11	+16	+4	+60	+72	+76	+70	+55	+33	+7	−19	44	−6	−73	−76	−68	−5
80	−85	−80	−64	−4	−13	+18	+45	+67	+81	+85	+78	+61	+37	+8	−2	−49	−70	−82	−85	−76	−58
100	−84	−79	−64	−41	−13	+18	+45	+67	+80	+84	+77	+61	+36	+8	−2	−49	−70	−81	−84	−76	−58
120	−74	−70	−56	36	−11	+15	+40	+58	+70	+74	+68	+53	+3	+7	−19	−43	−61	−71	74	−66	−51
140	−55	−5	−41	7	−8	+11	+9	+43	+5	+55	+50	+39	+4	+5	−14	−3	−45	−53	−55	−49	38
160	−9	−27	−	−14	−4	+6	+16	+3	+28	+9	+7	+1	+13	+3	−7	−17	−24	8	−9	−6	−20
180	0	0		0	0		0	0		0		0	0	0	0	0	0	0	0		0
200	+29	+7	+2	+14	+4	−6	−15	−23	27	−29	6	−21	−1	−3	+7	+17	+24	+8	+29	+6	+0
220	+54	+51	+41	+7	+8	−11	−29	43	−5	54	−50	39	−3	−5	+14	+3	+45	+53	+54	+49	+37
240	+74	+69	+56	+36	+11	−15	39	−58	−70	−74	−68	−53	−3	−7	+19	+43	+61	+71	+74	+65	+51
260	+84	+79	+64	+41	+13	−18	−45	−67	−80	−84	−77	−61	36	−8	+	+49	+7	+81	+84	+76	+58
280	+85	+80	+64	+4	+13	−18	−45	−67	−81	85	−78	−61	−37	−8	+	+49	+70	+8	+85	+76	+58
300	+76	+71	+57	+37	+11	−16	−41	−60	−7	−76	−7	−55	−33	−7	+19	+44	+63	+73	+76	+68	+52
320	+58	+54	+44	+8	+9	−1	−31	−46	−55	−58	−53	−42	−5	−5	+15	+34	+48	+56	+58	+52	+4
340	+33	+31	+5	+16	+5	−7	−18	−6	−31	−33	−30	−4	−14	−3	+8	+19	+7	+3	+33	+29	+22
360	+4	+4	+3	+	+1	−1	−2	−3	−4	−4	−4	−3	−	0	+1	+	+3	+4	+4	+4	+3
380	−25	−24	19	−1	−4	+5	+13	+	+4	+25	+23	+18	+11	+	−6	−15	−21	−4	−25	−2	−17
400	−51	−48	−39	−25	−8	+11	+8	+41	+49	+51	+47	+37	+2	+5	−13	−30	−4	−50	−51	−46	−35

SATELLITE I
Tables of the Phenomena

Equations of the Reduction

XLVIII

1	2
A	E., O., S., T.
d	d
0·0	+ ·000035
·1	46
·2	57
·3	64
·4	68
·5	67
0·6	+ ·000063
·7	55
·8	44
·9	32
1·0	21
·1	+ ·000011
·2	4
·3	1
·4	3
·5	8
1·6	+ ·000016
·7	27
·8	39
·9	50
2·0	60
2·1	+ ·000066
·2	68
·3	66
·4	60
·5	51
2·6	+ ·000040
·7	28
·8	17
·9	8
3·0	3
3·1	+ ·000001
·2	4
·3	10
·4	20
·5	31
3·6	+ ·000043
·7	54
·8	63
·9	67
4·0	+ ·000068

Added Constant: +0d·000035.

XLIX

1	2
P	E., O., S., T.
d	d
0·00	+ ·000010
·05	8
·10	5
·15	4
·20	3
·25	3
0·30	+ ·000004
·35	6
·40	8
·45	10
·50	13
0·55	+ ·000015
·60	17
·65	18
·70	17
·75	16
0·80	+ ·000014
·85	12
·90	9
·95	7
1·00	+ ·000004

Added Constant: +0d·000010.

L

1	2
Q	E., O., S., T.
d	d
0·0	+ ·000005
·1	3
·2	2
·3	2
·4	4
·5	6
0·6	+ ·000008
·7	8
·8	7
·9	5
1·0	+ ·000003

Added Constant: +0d·000005.

LI Corrections for Phase Sh., Tr.

1	2	3	4	5
Additional Equation to Semiduration.	p ±	Correcting Factor to Semiduration.	Δ 0d·001	Correcting Factor to Reduction.
d	d			
·000000	0·000	·00000	0	0·0000
0	·002	− ·00003	− 3	− 0·0001
0	·004	11	5	2
0	·006	24	8	5
0	·008	42	10	8
+ 1	·010	65	13	13
+ ·000001	0·012	− ·00093	− 16	− ·0018
1	·014	127	18	25
2	·016	166	21	33
2	·018	210	23	41
2	·020	259	26	51
+ ·000003	0·022	− ·00313	− 29	− ·0061
3	·024	373	31	73
4	·026	438	34	86
4	·028	508	36	100
5	·030	583	39	115
+ ·000006	0·032	− ·00664	− 42	− ·0131
6	·034	750	44	148
7	·036	840	46	165
8	·038	935	49	184
9	·040	1036	52	205
+ ·000010	0·042	− ·01142	− 54	− ·0226
11	·044	1253	57	248
12	·046	1369	59	272
13	·048	1490	62	296
14	·050	1616	65	322
+ ·000015	0·052	− ·01748	− 67	− ·0349
16	·054	1884	70	377
16	·056	2026	72	406
17	·058	2173	75	437
17	·060	2324	77	468
17	·062	2482	81	501
+ ·000017	0·064	− ·02649	− 86	− ·0536

The Argument of this Table is the Annual Parallax *p*, computed from the Approximate Tables IV, V, VI.

No Constant has been added to Column 1, which gives an Additional Equation to the Semiduration. Columns 3 and 4 must be multiplied into the Semiduration as taken from Tables XL–XLIV, and the Reduction as taken from Tables XLV–L, respectively, and the products taken as further corrections to these quantities.

When *p* is positive, these corrections apply to Shadow Ingress and Transit Egress; when *p* is negative, they apply to Shadow Egress and Transit Ingress.

SATELLITE I

Tables of the Phenomena

LII
Standard Light Curve of Eclipse

l	Magnitude	*l*	Magnitude
-5 0	0 00	0 0	0 75
4 0		+0 2	8
3 8	04	0 4	88
3 6	6	0 6	95
3 4	08	0 8	1 03
3 2	11	1 0	1 10
-3 0	0 13	+1 2	1 19
2 8	16	1 4	1 8
2 6	19	1 6	1 38
2 4	22	1 8	1 5
2 2	5	2 0	1 61
2 0	29	+2 2	1 73
1 8	32	2 4	1 87
1 6	35	2 6	0
1 4	39	2 8	2 18
1 2	43	3 0	37
-1 0	0 48	+3 2	2 56
0 8	53	3 4	78
0 6	58	3 6	3 0
0 4	64	3 8	3 33
-0 2	7	4 0	3 74
0 0	0 75	+4 2	4 30

[illegible]

LIII—Mean Motion in Light Curve

Latitude	Δ *l* per 1	Latitude
00	0416	80
02	4 1	78
04	4 5	76
06	4 8	74
08	43	72
10	435	70
12	0438	68
14	441	66
16	444	64
18	446	62
20	449	60
22	0451	58
24	45	56
26	454	54
28	455	52
30	456	50
32	0457	48
34	458	46
36	459	44
38	459	42
40	0459	40

LIV—Equation of Motion

Variation	Correction
− 010	+ 002
− 005	+ 0001
000	0000
+ 005	00 1
+ 010	− 00

[illegible] Tables XXV XXIX [illegible] Table LIII [illegible]

[illegible] LIII LIV [illegible]

SATELLITE II

Approximate Tables

of

Heliocentric and Geocentric Conjunction

SATELLITE II

Approximate Tables of Conjunction

I — **Epochs of Conjunction**

1	2	3	4	5	6	7	8	9
Year	Conjunction	Variation for 100^d	α	Variation for 100^d	β	γ	δ	ϵ
	d		d		d	d	d	d
1850	2·3345	...	1787·4	+ ·04	334·70	1·9	0·911	1·95
1851	3·4062	...	2153·6	+ ·04	301·89	2·7	0·335	2·25
***1852**	0·9240	...	2516·3	+ ·04	265·53	365·2	3·255	2·54
1853	0·9958	...	2882·5	+ ·01	232·71	0·8	2·679	2·84
1854	2·0675	...	3248·6	+ ·01	199·90	1·6	2·102	3·14
1855	3·1393	...	3614·8	− ·03	167·09	2·4	1·526	3·44
***1856**	0·6566	...	3977·1	− ·04	130·72	364·9	0·921	0·19
1857	0·7283	...	10·4	− ·01	97·91	0·5	0·344	0·49
1858	1·7999	...	376·4	− ·01	65·10	1·3	3·293	0·79
1859	2·8716	...	742·5	+ ·01	32·29	2·1	2·716	1·09
***1860**	0·3893	...	1105·1	+ ·04	394·80	364·6	2·111	1·39
1861	0·4612	+ ·0001	1471·4	+ ·07	361·99	0·2	1·535	1·69
1862	1·5331	...	1837·7	+ ·04	329·18	1·0	0·958	1·99
1863	2·6048	...	2203·8	− ·04	296·37	1·8	0·382	2·29
***1864**	0·1222	− ·0001	2566·0	− ·13	260·00	364·3	3·302	2·59
1865	0·1934	− ·0001	2931·5	− ·16	227·19	365·1	2·725	2·89
1866	1·2647	− ·0002	3297·1	− ·20	194·38	0·7	2·149	3·19
1867	2·3356	− ·0001	3662·2	− ·17	161·56	1·5	1·573	3·48
***1868**	3·4071	...	4028·0	− ·04	128·75	2·3	0·996	0·23
1869	3·4788	...	61·6	+ ·06	95·94	3·1	0·420	0·53
1870	0·9967	+ ·0001	424·5	+ ·16	59·57	0·4	3·340	0·83
1871	2·0690	+ ·0002	791·3	+ ·21	26·76	1·2	2·763	1·13
***1872**	3·1414	+ ·0002	1158·1	+ ·20	392·83	2·0	2·187	1·43
1873	3·2135	+ ·0001	1524·8	+ ·13	360·02	2·8	1·610	1·73
1874	0·7314	...	1887·6	+ ·03	323·65	0·0	1·005	2·03
1875	1·8030	− ·0001	2253·6	− ·10	290·84	0·9	0·429	2·33
***1876**	2·8742	− ·0002	2619·1	− ·18	258·03	1·7	3·378	2·63
1877	2·9453	− ·0002	2984·4	− ·19	225·22	2·5	2·801	2·93
1878	0·4624	− ·0001	3346·3	− ·18	188·85	365·0	2·196	3·23
1879	1·5336	− ·0001	3711·7	− ·10	156·04	0·6	1·619	3·52
***1880**	2·6052	...	4077·7	+ ·03	123·23	1·4	1·043	0·27
1881	2·6771	+ ·0001	111·5	+ ·13	90·41	2·2	0·466	0·57
1882	0·1952	+ ·0001	474·6	+ ·17	54·05	364·7	3·387	0·87
1883	1·2674	+ ·0001	841·3	+ ·14	21·24	0·2	2·810	1·17
***1884**	2·3395	+ ·0001	1207·7	+ ·07	387·31	1·1	2·234	1·47
1885	2·4112	...	1573·9	− ·01	354·50	1·9	1·657	1·77
1886	3·4828	− ·0001	1939·8	− ·08	321·68	2·7	1·081	2·07
1887	1·0000	− ·0001	2301·9	− ·11	285·32	365·2	0·476	2·37
***1888**	2·0714	− ·0001	2667·6	− ·10	252·50	0·8	3·425	2·67
1889	2·1429	...	3033·3	− ·06	219·69	1·6	2·848	2·97
1890	3·2145	...	3399·3	+ ·03	186·88	2·4	2·272	3·27
1891	0·7323	+ ·0001	3762·1	+ ·10	150·51	364·9	1·666	0·02
***1892**	1·8044	+ ·0001	4128·6	+ ·11	117·70	0·5	1·090	0·32
1893	1·8764	+ ·0001	162·5	+ ·11	84·89	1·3	0·513	0·62
1894	2·9484	+ ·0001	528·9	+ ·08	52·08	2·1	3·462	0·92
1895	0·4662	...	891·7	+ ·01	15·71	364·6	2·857	1·21
***1896**	1·5378	...	1257·6	− ·04	381·78	0·1	2·281	1·51
1897	1·6093	− ·0001	1623·5	− ·08	348·97	1·0	1·704	1·81
1898	2·6807	− ·0001	1989·2	− ·10	316·16	1·8	1·128	2·11
1899	0·1981	− ·0001	2351·4	− ·07	279·79	364·3	0·523	2·41
1900	1·2696	...	2717·3	− ·01	246·98	365·1	3·471	2·71
Period	3·5541	...	4332·6	...	398·88	365·3	3·525	3·55

The constant $-0^d{\cdot}1000$ has been applied to each entry in column 2.

The constant $-0^d{\cdot}080$ has been applied to each entry in columns 8, 9.

For Eclipses the argument γ is not wanted.

Column 2 corrected by the equations from the following tables, gives superior conjunction as required for Eclipses and Occultations. To find inferior conjunction for Shadows and Transits, add (or subtract) one half the synodic period, *i. e.* $1^d{\cdot}7770$, to the numbers of columns 2, 4, 6, 7, 8, 9.

SATELLITE II

Approximate Tables of Conjunction

I *continued*

Epochs of Conjunction

		3	4	5	6	7	8	9
Ye	Co junc ti	Var ation foi 100d	α	Var ation for 100d	β	γ	δ	
			d		d			d
1900	1 2696		717 3	− 01	246 98	365 1	3 471	2 71
1901	2 3414		3 83 4	+ 06	14 17	0 7	895	3 1
1902	3 4133	+ 001	3449 8	+ 07	181 35	1 5	2 319	3 31
1903	9311		381 5	+ 03	144 99	364	1 713	0 06
***1904**	2 0 28		4178 6	− 01	11 18	364 8	1 137	0 36
1905	0744		1	− 4	79 36	0 3	0 560	0 66
1906	3 1459		577 8	− 06	46 55	1 2	3 509	0 96
1907	0 6634		940	− 04	10 19	363 7	2 904	1 5
1908	1 735		1306 1	− 01	376 26	364 5	2 3 8	1 55
1909	1 8 67		167	0	343 45		1 751	1 85
1910	2 8784		38 3	+ 03	310 63	0 9	1 175	15
1911	396		401 0	+ 04	274 7	363 4	0 569	45
1912	1 4679		767	+ 03	41 46	364 2	3 518	75
1913	1 5397		3133 3	+ 01	08 64	365	2 942	3 05
1914	2 6114		3499 4	03	175 83	0 5	365	3 35
1915	0 1 89		3861 7	− 6	139 46	363 1	1 760	0 10
1916	1 4	− 0001	4 76	− 07	106 65	363 9	1 184	0 40
1917	1 719		260 8	− 04	73 84	364 7	0 607	0 70
1918	3436		6 68	+ 01	41 03	0 2	0 031	1 00
1919	3 4153		993 0	+ 04	8 2	1 1	980	1 30
1920	0 9331	+ 00 1	1355 7	+ 07	370 73	363 6	374	1 59
1921	1 0050	+ 00 1	17 2 1	+ 1	337 9	364 4	1 798	1 89
1922	0771		088 6	00	305 11	365	1 1	19
1923	3 1484	− 0001	2454 2	− 7	7 30	8	0 645	2 49
***1924**	666	− 0 1	816 7	− 11	35 93	363 3	0 04	79
1925	0 7371	− 000	318 0	− 20	03 1	364 1	2 989	3 09
1926	1 8 81	− 000	3547 3	− 0	170 31	364 9	2 41	3 39
1927	2 8793	− 0001	3912 7	− 14	137 49	4	1 836	0 14
1928	0 3966		4 749	− 03	101 13	363 0	1 231	0 44
1929	0 4684	+ 0001	308 5	+ 1	68 32	363 8	654	0 74
1930	1 54 6	+ 000	675 1	+ 18	35 50	364 6	0 078	1 04
1931	61 9	+ 0002	1041 9	+ 19	69	0 1	3 027	1 34
***1932**	0 1311	+ 0 01	1405 1	+ 18	365 21	362 7	4 1	1 63
1933	0 033	+ 0001	1771 8	+ 11	332 40	363 5	1 845	1 93
1934	1 75		138 1	00	299 58	364 3	1 68	23
1935	2 3467	− 0001	5 39	− 11	266 77	365 1	0 692	2 53
1936	3 4179	− 000	2869 4	− 19	33 96	0 7	0 116	83
1937	3 4890	− 0002	3234 7	− 21	201 14	1 5	3 065	3 13
1938	1 0 59	− 0001	3596 4	− 17	164 78	364 0	2 459	3 43
1939	773	− 0001	3962 1	− 07	131 9,	364 8	1 883	0 18
1940	3 1489		4328 0	+ 04	99 16	0 3	1 306	0 48
1941	3 2 9	+ 0001	361 9	+ 14	66 34	1 2	0 730	0 78
1942	0 7390	+ 0001	7 5	+ 15	9 98	363 7	0 125	1 08
1943	1 8111	+ 0001	1091 6	+ 11	396 05	364 5	3 073	1 38
***1944**	2 8831		1458 0	+ 04	363 4	0	2 497	1 68
1945	9548		18 40	− 03	330 43	0 8	1 9 0	1 98
1946	0 47	− 0 01	2186 4	− 08	294 6	363 4	1 315	2 8
1947	1 5436	− 0 1	255	− 10	261 5	364 2	0 739	2 58
1948	6150	− 0001	2917 8	− 07	28 43	365 0	16	2 88
1949	6866		3 83 7	− 3	195 62	0 5	3 111	3 18
1950	0 204		3646 2	+ 04	159 26	363 1	506	3 47
Pe od	3 5541		4332 6		398 88	365 3	3 5 5	3 55

The constant $-0^d 1000$ has been applied to each entry in column

Th constant $-0^d 080$ has been aj pl ed to each entiy i colui s 8 9

Fo Eclipses the argu ment γ is not wanted

Column corrected by the equatio s f om the following tables gives superior conjunction as required for I clipses and Occultations To find inferior conjunc tion for Shadows and Transits add (oi sub t act) one half the synodic period e $1^d 7770$ to the num bers of columns 2 4 6 7 8 9

SATELLITE II

Approximate Tables of Conjunction

I *continued*

Epochs of Conjunction

1	2	3	4	5	6	7	8	9
Year	Conjunction	Variation for 100^d	α	Variation for 100^d	β	γ	δ	ϵ
	d		d		d	d	d	d
1950	0·2042	...	3646·2	+ ·04	159·26	363·1	2·506	3·47
1951	1·2761	+ ·0001	4012·6	+ ·08	126·44	363·9	1·931	0·22
*1952	2·3481	+ ·0001	46·3	+ ·10	93·63	364·7	1·353	0·52
1953	2·4201	+ ·0001	412·8	+ ·08	60·82	0·2	0·777	0·82
1954	3·4920	...	779·1	+ ·04	28·00	1·1	0·200	1·12
1955	1·0097	...	1141·7	·00	390·53	363·6	3·120	1·42
*1956	2·0813	...	1507·7	− ·04	357·71	364·4	2·544	1·72
1957	2·1528	− ·0001	1873·6	− ·08	324·90	365·2	1·967	2·02
1958	3·2242	− ·0001	2239·2	− ·08	292·09	0·7	1·391	2·32
1959	0·7416	...	2601·5	− ·03	255·72	363·3	0·786	2·62
*1960	1·8133	...	2967·6	+ ·03	222·91	364·1	0·209	2·92
1961	1·8852	...	3333·9	+ ·06	190·10	364·9	3·158	3·22
1962	2·9570	...	3700·2	+ ·04	157·29	0·4	2·582	3·51
1963	0·4747	...	4062·8	·00	120·92	363·0	1·976	0·26
*1964	1·5463	...	96·2	− ·04	88·11	363·8	1·400	0·56
1965	1·6179	...	462·1	− ·06	55·30	364·6	0·823	0·86
1966	2·6894	...	828·0	− ·03	22·48	0·1	0·246	1·16
1967	0·2070	...	1190·5	− ·04	385·00	362·7	3·167	1·46
*1968	1·2785	...	1556·3	− ·03	352·19	363·5	2·591	1·76
1969	1·3502	...	1922·5	+ ·04	319·38	364·3	2·014	2·06
1970	2·4221	+ ·0001	2288·7	+ ·06	286·56	365·1	1·438	2·36
1971	3·4940	...	2655·0	+ ·04	253·75	0·6	0·862	2·66
*1972	1·0117	...	3017·6	+ ·03	217·39	363·2	0·256	2·96
1973	1·0834	...	3383·8	− ·01	184·57	364·0	3·205	3·26
1974	2·1550	− ·0001	3749·7	− ·07	151·76	364·8	2·629	0·01
1975	3·2264	− ·0001	4115·4	− ·07	118·95	0·3	2·052	0·31
*1976	0·7439	...	145·1	+ ·03	82·58	362·9	1·447	0·60
1977	0·8159	...	511·6	− ·04	49·77	363·7	0·870	0·90
1978	1·8870	− ·0001	877·0	− ·08	16·96	364·5	0·294	1·20
1979	2·9588	+ ·0001	1243·2	+ ·07	383·03	0·0	3·243	1·50
*1980	0·4767	+ ·0001	1606·1	+ ·11	346·66	362·5	2·638	1·80
1981	0·5487	+ ·0001	1972·5	+ ·10	313·85	363·4	2·061	2·10
1982	1·6207	...	2338·9	+ ·03	281·40	364·2	1·485	2·40
1983	2·6923	− ·0001	2704·9	− ·10	248·23	365·0	0·908	2·70
*1984	0·2094	...	3066·8	− ·04	211·86	362·2	0·303	3·00
1985	0·2814	− ·0002	3432·2	− ·21	179·05	363·1	3·252	3·30
1986	1·3515	− ·0003	3797·4	− ·34	146·24	363·9	2·675	0·05
1987	2·4227	− ·0001	4162·7	− ·11	113·42	364·7	2·099	0·35
*1988	3·4943	...	196·1	·00	80·61	0·2	1·523	0·64
1989	0·0120	+ ·0001	558·8	+ ·10	44·25	362·7	0·917	0·94
1990	1·0841	+ ·0002	925·4	+ ·18	11·43	363·6	0·341	1·24
1991	2·1565	+ ·0002	1292·3	+ ·20	377·50	364·4	3·290	1·54
*1992	3·2288	+ ·0001	1659·0	+ ·17	344·69	365·2	2·713	1·84
1993	3·3009	+ ·0001	2025·6	+ ·08	311·88	0·7	2·137	2·14
1994	0·8186	...	2388·2	− ·03	275·51	363·3	1·532	2·44
1995	1·8900	− ·0001	2754·0	− ·14	242·70	364·1	0·955	2·74
*1996	2·9611	− ·0002	3119·4	− ·20	209·89	364·9	0·379	3·04
1997	3·0322	− ·0002	3484·6	− ·20	177·08	0·4	3·327	3·34
1998	0·5492	− ·0001	3846·4	− ·16	140·71	363·0	2·722	0·09
1999	1·6206	...	4212·1	− ·06	107·90	363·8	2·146	0·39
*2000	2·6923	...	245·6	·00	75·09	364·6	1·569	0·69
Period	3·5541	...	4332·6	...	398·88	365·3	3·525	3·55

The constant $-0^{d}{\cdot}1000$ has been applied to each entry in column 2.

The constant $-0^{d}{\cdot}080$ has been applied to each entry in columns 8, 9.

For Eclipses the argument γ is not wanted.

Column 2 corrected by the equations from the following tables, gives superior conjunction as required for Eclipses and Occultations. To find inferior conjunction for Shadows and Transits, add (or subtract) one half the synodic period, *i.e.* $1^{d}{\cdot}7770$, to the numbers of columns 2, 4, 6, 7, 8, 9.

SATELLITE II

Approximate Tables of Conjunction

II

Motions of the Arguments

			3	4	5				3	4	5
Syn Pev	Date		α β γ	δ	ε	Syn Rev	Date		α β γ	δ	
		d			d			ı	d		
1	January	3 5541	3 55	0 9	0	**53**	July	7 3670	188 37	1 517	0 15
2		7 08	7 11	0 57	0 1	**54**		109 11	1919	1 546	0 16
3		1 66 3	10 66	0 086	0 01	**55**		14 475	195 48	1 575	0 16
4		14 164	14	0 115	0 01	**56**		18 0 93	199 03	1 6 3	0 16
5		17 7705	17 77	0 143	0 1	**57**		1 5834	2 2 58	1 63	0 17
6		1 3 46	1 3	0 17	0	**58**		5 1375	06 14	1 661	0 17
7		4 8787	4 88	0		**59**		28 6916	09 69	1 689	0 17
8		8 43 8	8 43	0 2 9	0 0	**60**	August	1 457	13 25	1 716	17
9		31 9868	31 99	258	0 03	**61**		4 7997	216 80	1 746	0 18
10	I ebruaıy	4 5409	35 54	0 286	0 03	**62**		8 3538	220 35	1 775	0 18
11		8 950	39 1	0 315	0 03	**63**		11 9079	2 3 91	1 804	0 18
12		11 6491	4 65	0 344	0 03	**64**		15 46 0	7 46	1 83	0 19
13		15 03	46 2	0 37	0 04	**65**		19 0161	231 0	1 861	19
14		18 7573	49 76	0 4 1	0 4	**66**		2 570	34 57	1 890	0 19
15		3114	53 31	0 4 9	04	**67**		6 1243	38 1	1 918	0 20
16		25 8655	56 87	458	0 05	**68**		9 6784	41 68	1 947	0 20
17	March	1 4196	60 4	0 487	0 05	**69**	Septembeı	2 325	245 3	1 976	0 20
18		4 9737	63 97	0 515	0 05	**70**		5 7866	248 79	2 004	0 20
19		8 5 78	67 53	0 544	0 6	**71**		9 3407	25 34	033	21
20		1 0819	71 08	0 573	0 6	**72**		12 8948	255 89	2 061	0 21
21		15 6360	74 64	0 601	0 6	**73**		16 4489	59 45	090	0 21
22		19 1901	78 19	0 630	0 06	**74**		20 0030	63 0	2 119	0 2
23		7442	81 74	0 659	0 07	**75**		23 5571	66 56	2 147	0 22
24		6 983	85 30	0 687	0 07	**76**		7 111	70 11	2 176	22
25		9 85 4	88 85	0 716	0 07	**77**		30 6653	73 67	2 05	0 2
26	Apııl	4064	9 41	0 744	0 8	**78**	October	4 2193	77	233	23
27		5 96 5	95 96	773	0 08	**79**		7 7734	80 77	26	3
28		9 5146	99 51	0 80	08	**80**		11 3 75	84 33	2 290	0 3
29		13 687	103 07	0 830	0 8	**81**		14 8816	87 88	319	0 4
30		16 6 28	106 6	0 859	09	**82**		18 4357	291 44	348	0 24
31		0 1769	11 18	0 888	9	**83**		1 9898	294 99	376	0 24
32		3 7310	113 73	0 916	0 09	**84**		25 5439	98 54	405	0 24
33		7 85	117 9	945	0 10	**85**		9 980	302 10	2 434	0 5
34		30 839	1 84	973	10	**86**	November	1 6521	305 65	2 462	0 5
35	May	4 3933	1 4 39	1 0	0 10	**87**		5 2062	309 1	491	0 25
36		7 9474	1 7 95	1 031	0 1	**88**		8 7603	312 76	2 519	0 26
37		11 5 15	131 50	1 059	0 11	**89**		1 3144	316 31	548	0 26
38		15 556	135 06	1 088	0 11	**90**		15 8685	319 87	577	0 26
39		18 6 97	138 61	1 117	0 11	**91**		194 6	323 42	2 6 5	0 27
40		1638	14 16	1 145	0 12	**92**		2 9767	3 6 98	2 634	0 27
41		25 7179	145 7	1 174	0 12	**93**		6 5308	330 53	2 663	0 27
42		9 7	149 7	1	0 1	**94**		30 0849	334 08	2 691	0 7
43	June	1 8 60	15 83	1 31	0 13	**95**	December	3 6389	337 64	2 72	0 8
44		5 3801	156 38	1 260	0 13	**96**		7 1930	341 19	2 749	0 28
45		8 934	159 93	1 88	0 13	**97**		10 7471	344 75	777	0 28
46		1 4883	163 49	1 317	0 13	**98**		14 301	348 30	2 8 6	0 29
47		16 04 4	167 4	1 346	0 14	**99**		17 8553	351 86	2 834	0 29
48		19 5965	170 60	1 374	0 14	**100**		1 4 94	355 41	863	0 29
49		23 1506	174 15	1 4 3	14	**101**		24 9635	358 96	2 89	0 9
50		6 7047	177 7	1 43	0 15	**102**		8 5176	362 52	920	0 30
51		30 588	181 6	1 46	0 15	**103**		32 0717	366 07	2 949	0 3
52	July	3 8129	184 81	1 489	15						

SATELLITE II

Approximate Tables of Conjunction

III **Equation of Conjunction** **Argument** a **Ec., Oc., Sh., Tr.**

1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
a	Equation	$\frac{\Delta}{10^d}$	a	Equation	$\frac{\Delta}{10^d}$	a	Equation	$\frac{\Delta}{10^d}$	a	Equation	$\frac{\Delta}{10^d}$	a	Equation	$\frac{\Delta}{10^d}$
d	d		d	d		d	d		d	d		d	d	
0	0·0800	+8,5	**1000**	0·1346	+0,3	**2000**	0·0923	−7,3	**3000**	0·0301	−3,0	**4000**	0·0533	+7,3
20	817	8,5	**1020**	1346	+0,3	**2020**	908	7,5	**3020**	295	3,0	**4020**	548	7,5
40	834	8,3	**1040**	1347	0,0	**2040**	893	7,3	**3040**	289	3,0	**4040**	563	7,5
60	850	8,3	**1060**	1346	−0,3	**2060**	879	7,3	**3060**	283	2,8	**4060**	578	7,8
80	867	8,5	**1080**	1346	0,3	**2080**	864	7,5	**3080**	278	2,3	**4080**	594	7,8
100	884	8,3	**1100**	1345	0,8	**2100**	849	7,5	**3100**	274	2,0	**4100**	609	7,8
120	0·0900	+8,3	**1120**	0·1343	−1,0	**2120**	0·0834	−7,3	**3120**	0·0270	−2,0	**4120**	0·0625	+8,0
140	917	8,3	**1140**	1341	1,0	**2140**	820	7,3	**3140**	266	1,8	**4140**	641	8,0
160	933	8,0	**1160**	1339	1,3	**2160**	805	7,5	**3160**	263	1,5	**4160**	657	8,0
180	949	8,0	**1180**	1336	1,5	**2180**	790	7,5	**3180**	260	1,3	**4180**	673	8,3
200	965	8,0	**1200**	1333	1,8	**2200**	775	7,5	**3200**	258	1,0	**4200**	690	8,3
220	0·0981	+8,0	**1220**	0·1329	−2,0	**2220**	0·0760	−7,5	**3220**	0·0256	−0,8	**4220**	0·0706	+8,3
240	997	7,8	**1240**	1325	2,3	**2240**	745	7,5	**3240**	255	0,5	**4240**	723	8,3
260	1012	7,5	**1260**	1320	2,5	**2260**	730	7,3	**3260**	254	0,5	**4260**	739	8,3
280	1027	7,5	**1280**	1315	2,8	**2280**	716	7,3	**3280**	253	−0,3	**4280**	756	8,5
300	1042	7,5	**1300**	1309	3,0	**2300**	701	7,5	**3300**	253	+0,3	**4300**	773	8,3
320	0·1057	+7,5	**1320**	0·1303	−3,0	**2320**	0·0686	−7,3	**3320**	0·0254	+0,5	**4320**	0·0789	+8,3
340	1072	7,3	**1340**	1297	3,3	**2340**	672	7,0	**3340**	255	0,5	**4340**	806	8,5
360	1086	7,0	**1360**	1290	3,5	**2360**	658	7,3	**3360**	256	0,8	**4360**	823	8,5
380	1100	7,0	**1380**	1283	3,5	**2380**	643	7,3	**3380**	258	1,0	**4380**	840	8,3
400	1114	7,0	**1400**	1276	3,8	**2400**	629	7,0	**3400**	260	1,3	**4400**	856	8,3
420	0·1128	+6,8	**1420**	0·1268	−4,0	**2420**	0·0615	−7,0	**3420**	0·0263	+1,5	**4420**	0·0873	+8,5
440	1141	6,5	**1440**	1260	4,3	**2440**	601	7,0	**3440**	266	1,8	**4440**	890	8,3
460	1154	6,3	**1460**	1251	4,5	**2460**	587	7,0	**3460**	270	2,0	**4460**	906	8,3
480	1166	6,0	**1480**	1242	4,5	**2480**	573	6,8	**3480**	274	2,3	**4480**	923	8,3
500	1178	6,0	**1500**	1233	4,5	**2500**	560	6,8	**3500**	279	2,5	**4500**	939	8,0
520	0·1190	+5,8	**1520**	0·1224	−4,8	**2520**	0·0546	−6,8	**3520**	0·0284	+2,8	**4520**	0·0955	+8,0
540	1201	5,5	**1540**	1214	5,0	**2540**	533	6,5	**3540**	290	3,0	**4540**	971	8,0
560	1212	5,5	**1560**	1204	5,0	**2560**	520	6,5	**3560**	296	3,0	**4560**	987	7,8
580	1223	5,5	**1580**	1194	5,3	**2580**	507	6,3	**3580**	302	3,3	**4580**	1002	7,8
600	1233	5,0	**1600**	1183	5,5	**2600**	495	6,3	**3600**	309	3,8	**4600**	1018	7,8
620	0·1243	+5,0	**1620**	0·1172	−5,5	**2620**	0·0482	−6,3	**3620**	0·0317	+4,0	**4620**	0·1033	+7,5
640	1253	4,8	**1640**	1161	5,8	**2640**	470	6,0	**3640**	325	4,0	**4640**	1048	7,5
660	1263	4,3	**1660**	1149	6,0	**2660**	458	6,0	**3660**	333	4,3	**4660**	1063	7,3
680	1270	4,0	**1680**	1137	6,0	**2680**	446	5,8	**3680**	342	4,5	**4680**	1077	7,3
700	1278	4,0	**1700**	1125	6,0	**2700**	435	5,5	**3700**	351	4,5	**4700**	1092	7,3
720	0·1286	+3,8	**1720**	0·1113	−6,0	**2720**	0·0424	−5,5	**3720**	0·0360	+4,8	**4720**	0·1106	+6,8
740	1293	3,5	**1740**	1101	6,3	**2740**	413	5,5	**3740**	370	5,3	**4740**	1119	6,8
760	1300	3,3	**1760**	1088	6,5	**2760**	402	5,3	**3760**	381	5,5	**4760**	1133	6,3
780	1306	3,0	**1780**	1075	6,5	**2780**	392	5,0	**3780**	392	5,5	**4780**	1146	6,3
800	1312	3,0	**1800**	1062	6,5	**2800**	382	5,0	**3800**	403	5,5	**4800**	1158	6,3
820	0·1318	+2,8	**1820**	0·1049	−6,8	**2820**	0·0372	−4,8	**3820**	0·0414	+5,8	**4820**	0·1171	+6,3
840	1323	2,3	**1840**	1035	6,8	**2840**	363	4,5	**3840**	426	6,0	**4840**	1183	5,8
860	1327	2,0	**1860**	1022	6,8	**2860**	354	4,5	**3860**	438	6,3	**4860**	1194	5,5
880	1331	2,0	**1880**	1008	7,0	**2880**	345	4,3	**3880**	451	6,5	**4880**	1205	5,5
900	1335	1,8	**1900**	994	7,0	**2900**	337	4,0	**3900**	464	6,5	**4900**	1216	5,5
920	0·1338	+1,5	**1920**	0·0980	−7,0	**2920**	0·0329	−4,0	**3920**	0·0477	+6,8	**4920**	0·1227	+5,3
940	1341	1,3	**1940**	966	7,0	**2940**	321	3,8	**3940**	491	7,0	**4940**	1237	5,0
960	1343	1,0	**1960**	952	7,3	**2960**	314	3,5	**3960**	505	7,0	**4960**	1247	4,8
980	1345	0,8	**1980**	937	7,3	**2980**	307	3,3	**3980**	519	7,0	**4980**	1256	4,5
1000	0·1346	+0,3	**2000**	0·0923	−7,3	**3000**	0·0301	−3,0	**4000**	0·0533	+7,3	**5000**	0·1266	+4,5

Added Constant: $+0^d{\cdot}0800$.

The Equation of this Table to be applied to the entries in Columns 2, 8, 9 of Table I.

SATELLITE II

Approxımate Tables of Conȷunctıon

IV Equatıon of Geocentrıc Conȷunctıon Argument β Oc , Tr

		3			3			3			3
β	Equatıon	Δ 1	β	Equatıon	Δ 1	β	Lquatıon	Δ d	β	Equatıo	Δ 1d
			d	d		d	d		d	1	
0	−0 0030	− 1 0	100	−0 1373	+ 3 3	200	−0 0 92	+ 14 5	300	+0 0776	+ 3 0
2	34	1 3	102	1366	3 5	202	63	14 3	302	78	5
4	385	1 3	104	1359	4 0	204	35	14 3	304	786	1 8
6	4 7	1 0	106	1350	4 5	206	06	14 5	306	789	1 3
8	469	0 8	108	1341	5 0	208	177	14 3	308	791	0 8
10	51	8	110	133	5 5	210	149	14 3	310	79	+ 0 3
12	−0 0552	− 0 8	112	−0 1319	+ 5 8	212	− 01 0	+ 14 5	312	+0 079	− 0 3
14	593	0 3	114	1307	6 3	214	91	14 3	314	791	0 8
16	633	19 8	116	94	6 8	216	63	14 0	316	789	1 3
18	672	19 5	118	1 8	7	218	35	14	318	786	1 8
20	711	19 5	120	1266	7 3	220	−0 00 7	14 0	320	78	5
22	−0 0750	− 19 0	122	−0 1251	+ 7 8	222	+0 00 1	+ 13 8	322	+0 0776	− 3 3
24	787	18 5	124	1 35	8	224	48	13 8	324	769	3 5
26	824	18 3	126	1 19	8 5	226	76	13 8	326	76	4
28	86	17 8	128	1 01	9 0	228	103	13 5	328	753	5 0
30	895	17 3	130	1183	9 0	230	130	13 5	330	74	5 5
32	−0 0929	− 16 5	132	−0 1165	+ 9 3	232	+0 0157	+ 13 5	332	+0 0731	− 6 0
34	961	16	134	1146	9 8	234	184	13 3	334	718	6 8
36	993	15 8	136	11 6	10 3	236	210	13 0	336	704	7 3
38	10 4	15	138	11 5	10 5	238	236	13 0	338	689	8 0
40	1 53	14 5	140	1084	10 5	240	6	12 8	340	672	8 8
42	−0 1082	− 14	142	−0 1 63	+ 1 8	242	+0 287	+ 1 5	342	+0 0654	− 9 3
44	1109	13 3	144	1041	11 3	244	31	12 5	344	635	9 8
46	1135	12 8	146	1 18	11 5	246	337	1 3	346	615	1 5
48	116	1 0	148	995	11 8	248	361	11 8	348	593	11 3
50	1183	11 3	150	971	1 0	250	384	11 9	350	57	11 8
52	− 1 05	− 10 8	152	−0 0947	+ 12 0	252	+0 0408	+ 11 8	352	+0 0546	− 1 3
54	1 26	10 3	154	9 3	1 3	254	431	11 3	354	5 1	13 0
56	1 46	9 5	156	898	1 5	256	453	11 0	356	494	13 8
58	1 64	9 0	158	873	1 8	258	475	10 8	358	466	14 3
60	1282	8 3	160	847	13 0	260	496	10 5	360	437	14 8
62	−0 1297	− 7 5	162	−0 08 1	+ 13 0	262	+0 0517	+ 10 3	362	+0 0407	− 15 3
64	1312	7	164	795	13 0	264	537	9 8	364	376	16 0
66	13 5	6 3	166	769	13 3	266	556	9 5	366	343	16 5
68	1337	5 8	168	742	13 5	268	575	9 3	368	310	17 0
70	1348	5 3	170	715	13 8	270	593	9 0	370	275	17 5
72	−0 1358	− 4 5	172	−0 0687	+ 13 8	272	+0 0611	+ 8 8	372	+0 0240	− 17 8
74	1366	3 8	174	66	13 5	274	6 8	8 3	374	04	18 3
76	1373	3 3	176	633	13 8	276	644	8 0	376	167	18 8
78	1379	8	178	605	14	278	660	7 5	378	129	19 3
80	384	3	180	577	14 0	280	674	7 0	380	90	19 8
82	− 1388	− 1 8	182	−0 0549	+ 14 0	282	+ 0688	+ 7	382	+0 0 50	− 0 0
84	391	1	184	5 1	14	284	7	6 5	384	+0 001	0 3
86	139	5	186	493	14 3	286	714	5 8	386	−0 0031	20 5
88	1393		188	464	14 3	288	7 5	5 5	388	7	20 8
90	139	+ 0 6	190	436	14 3	290	736	5 3	390	113	1 0
92	−0 1390	+ 1 3	192	−0 0407	+ 14 5	292	+ 746	+ 4 8	392	−0 0155	− 21 0
94	1387	1 5	194	378	14 5	294	755	4 3	394	197	21 0
96	384	0	196	349	14 3	296	763	3 8	396	39	21 0
98	1379	8	198	3 1	14 3	298	770	3 3	398	81	21 0
100	− 1373	+ 3 3	200	−0 0 9	+ 14 5	300	+0 0776	+ 3 0	400	−0 0323	− 0

Appl 1C t t oo Th Eq ti f T bl IV t 1 by th f T bl V VI gl th A 1P ll p hi h m t b ppli d f
0 ult ti d T t t th t f th C 1 m 8 9 f T bl I d 1 g m t f T bl LXVI f mp ti g th ff t f J pit ph

SATELLITE II

Approximate Tables of Conjunction

V — Equation of Geocentric Conjunction — Arguments α, β — Oc., Tr.

α \ β	0ᵈ	10ᵈ	20ᵈ	30ᵈ	40ᵈ	50ᵈ	60ᵈ	70ᵈ	80ᵈ	90ᵈ	100ᵈ	110ᵈ	120ᵈ	130ᵈ	140ᵈ	150ᵈ	160ᵈ	170ᵈ	180ᵈ	190ᵈ	200ᵈ
d 0	200	188	176	166	157	150	145	142	141	143	146	150	155	161	168	174	180	185	190	195	200
100	218	206	193	181	170	161	153	148	144	143	143	146	149	153	158	163	169	174	178	183	188
200	236	223	210	197	184	173	163	155	148	144	142	142	144	146	150	154	158	162	167	171	176
300	252	240	227	213	199	185	173	162	154	147	142	140	139	140	142	145	148	152	156	160	165
400	268	256	243	229	213	198	184	171	160	151	144	139	136	135	136	137	140	143	146	150	154
500	282	272	259	244	228	211	195	180	167	155	146	139	134	132	131	131	133	135	137	140	144
600	295	286	273	258	241	224	206	190	174	161	150	141	134	130	127	126	126	128	130	132	135
700	306	297	285	271	254	236	218	200	183	167	154	143	135	129	125	123	122	123	124	126	128
800	314	307	296	282	266	248	228	209	191	175	160	147	138	130	125	121	120	119	119	121	122
900	320	315	305	292	276	258	239	219	200	182	166	153	141	132	126	121	119	117	117	117	118
1000	323	320	312	310	285	267	248	228	209	190	173	159	146	136	129	123	119	117	116	115	116
1100	324	322	316	305	292	275	256	237	217	199	181	165	152	141	133	126	122	119	117	116	115
1200	323	323	318	309	297	281	263	245	226	207	189	173	159	148	139	131	125	122	119	117	116
1300	318	320	317	310	299	286	269	252	233	215	198	181	167	155	145	138	131	127	124	121	119
1400	311	315	314	309	300	288	274	257	240	223	206	190	176	164	154	145	138	133	129	126	124
1500	302	307	308	306	299	289	277	262	246	230	214	199	185	173	162	154	147	141	137	133	130
1600	291	298	301	300	296	288	278	265	252	237	222	208	194	183	172	163	156	150	145	141	138
1700	278	286	291	292	290	285	277	267	256	243	230	217	204	193	183	174	166	160	155	151	147
1800	263	272	279	283	283	281	276	268	259	248	237	225	214	203	194	185	177	171	166	161	157
1900	247	257	266	271	274	274	272	267	260	252	243	233	223	213	204	196	189	183	177	172	168
2000	230	241	251	258	264	266	267	265	261	255	248	240	231	223	215	208	201	195	189	184	179
2100	212	224	235	244	252	257	260	261	260	257	252	246	240	233	226	219	212	207	202	196	191
2200	194	206	218	229	239	246	252	256	258	257	255	252	247	242	236	230	224	219	214	209	204
2300	176	188	201	213	225	235	244	250	254	257	257	256	253	249	245	240	235	230	226	221	216
2400	159	171	184	198	211	223	234	243	250	255	258	259	258	256	253	249	245	241	237	232	228
2500	142	154	167	182	196	210	223	235	245	252	257	261	262	262	260	258	255	251	247	243	239
2600	127	138	151	166	182	197	212	226	238	248	256	261	265	266	266	265	263	260	257	253	250
2700	113	123	136	151	168	184	201	217	231	243	253	261	266	269	271	271	270	268	265	262	259
2800	101	110	123	138	154	172	190	207	223	237	249	259	266	271	274	275	275	274	272	270	267
2900	91	99	111	125	142	160	179	197	215	230	244	256	264	271	275	278	279	279	278	276	274
3000	84	90	100	114	131	149	168	187	206	223	238	251	261	269	275	279	281	282	282	281	279
3100	78	83	92	105	121	139	158	178	197	215	231	246	257	266	273	278	282	283	284	284	283
3200	76	79	87	98	113	130	149	169	188	207	224	239	252	262	270	276	280	283	284	285	285
3300	76	77	83	93	107	123	141	160	180	199	216	232	245	257	265	272	277	280	283	284	285
3400	79	78	82	90	102	117	134	153	172	190	208	224	238	250	259	267	273	277	280	282	283
3500	84	81	84	90	100	113	129	146	164	182	200	216	230	242	252	260	267	271	275	278	280
3600	91	87	87	92	100	111	125	141	158	175	191	207	221	233	244	252	259	264	268	272	274
3700	101	96	94	96	102	111	123	137	152	168	183	198	212	224	234	243	250	256	261	265	268
3800	113	106	102	102	106	113	122	134	147	161	175	189	202	214	224	233	241	247	252	256	259
3900	127	119	113	111	112	116	123	132	143	155	168	181	192	204	214	222	230	236	241	246	250
4000	142	138	125	121	120	121	126	132	141	151	161	172	183	193	203	211	219	225	230	235	240
4100	159	148	139	133	129	128	130	133	139	147	156	165	174	183	192	200	207	213	219	224	228
4200	176	165	154	146	140	136	135	136	139	144	151	158	166	173	181	188	195	201	207	212	217
4300	194	182	171	161	152	146	142	140	141	143	147	152	158	164	171	177	184	189	194	199	204
4400	212	200	188	176	166	157	150	146	143	143	144	147	151	156	162	166	172	177	182	187	192
4500	230	218	205	192	180	169	159	152	147	144	143	143	145	148	152	157	161	166	171	175	180

The unit in this Table equals 0ᵈ·0001. Added Constant: +0ᵈ·0200. The sign is positive.

The Equation of this Table to be added to that of Table IV.

SATELLITE II

Approximate Tables of Conjunction

V *continued* Equation of Geocentric Conjunction Arguments α β Oc , Tr

β / α	200^{l}	210^{d}	220^{l}	230^{l}	240^{l}	250^{l}	260^{l}	270^{l}	280^{l}	290^{d}	300^{l}	310^{l}	320^{d}	330^{l}	340^{d}	350^{d}	360^{l}	370^{d}	380^{l}	390^{l}	400^{l}
0		05	1	215	1	7	33	39	245	50	255	257	59	58	255	50	24	233	2 3	211	199
100	188	193	198	203	1	16	2 3	30	38	45	51	57	61	63	263	6	255	248	239	2 8	217
200	176	181	186	191	198	5	13	1	30	39	247	255	61	66	69	269	67	6	255	245	234
300	165	169	174	18	186	193		211	1	231	4	52	61	68	274	277	277	75	69	61	251
400	154	158	163	168	175	18	191	2 1	1	24	36	248	59	69	277	283	286	286	83	76	267
500	144	48	152	158	164	171	18	191	02	15	29	43	56	68	79	87	93	295	294	289	281
600	135	39	143	148	154	161	17	181	193	206	21	236	252	266	79	290	298	303	304	301	94
700	1 8	131	134	139	145	15	161	171	184	198	13	30	46	262	77	91	301	308	311	310	305
800	12	1 5	1 7	131	137	143	15	16	175	189	05	2	240	58	274	89	302	311	316	317	314
900	118	1 0	122	1 5	13	136	144	154	166	180	197	14	233	52	70	286	300	311	318	3 1	32
1000	1 6	117	18	121	1 5	13	137	147	158	17	188	06	5	44	63	81	297	309	318	323	323
1100	115	1 5	1 6	118	1 1	1 6	13	141	15	165	18	198	217	36	56	75	91	305	316	322	3 4
1200	116	116	116	1 7	119	3	1 8	136	146	158	173	189	08	227	47	66	284	299	311	319	323
1300	119	118	117	118	119	1	1 6	13	141	15	166	181	199	18	38	257	275	91	304	313	319
1400	1 4	1	1 1	1 0	120	1 2	125	130	138	147	159	174	190	208	7	246	64	81	94	305	312
1500	13	1 8	1 6	1 4	1 4	124	1 6	130	135	143	154	167	182	198	216	234	52	268	283	295	303
1600	38	135	13	13	128	1 8	1 8	131	135	141	149	160	173	188	05	2 2	239	255	270	283	92
1700	147	143	140	13/	135	133	132	133	135	139	146	155	166	178	193	09	5	240	255	68	79
1800	157	153	149	146	142	39	137	37	137	139	144	150	159	169	18	195	210	225	39	253	64
1900	168	163	159	155	151	147	44	142	14	140	14	146	15	161	171	18	195	209	223	236	48
2000	179	175	17	166	161	156	15	148	145	143	143	144	147	153	161	170	181	193	206	19	31
2100	191	87	18	177	17	166	161	155	151	147	144	143	143	146	151	158	167	177	189	01	213
2200	4	199	194	189	183	177	170	164	157	151	146	143	141	140	143	147	153	16	17	183	195
2300	16	211	6	2 1	194	188	180	173	165	157	150	144	139	136	135	137	141	147	155	166	177
2400	28	2 3	18	213	6	199	191	18	173	164	155	146	139	133	1 9	128	1 9	133	140	149	160
2500	239	35	30	4	18	1	2	192	18	171	16	150	140	131	125	1 1	120	1 1	126	134	143
2600	50	46	241	35	29	2	13	203	191	179	167	154	14	131	1	115	111	111	113	119	128
2700	59	55	25	246	40	32	23	13	01	188	174	159	145	132	121	11	105	10	103	107	114
2800	67	64	60	55	249	4	233	223	10	196	181	166	150	135	121	11	101	95	94	96	10
2900	74	27	68	264	58	,1	243	3	0	05	189	173	156	139	123	110	99	91	87	88	92
3000	279	77	75	71	266	259	51	41	28	214	198	180	16	144	1 7	112	99	90	83	82	84
3100	83	8	8	77	7	66	258	49	37		06	188	170	151	13	115	101	89	81	78	79
3200	85	284	83	28	77	27	265	255	244	3	14	197	178	158	139	1 1	105	92	82	77	76
3300	85	85	284	8	80	75	69	261	251	38	2	05	186	167	147	128	111	97	86	79	76
3400	83	84	84	83	81	78	73	65	56	44	230	213	195	176	156	137	119	104	91	83	78
3500	8	281	8	8	81	279	74	269	60	250	236	2 1	204	185	166	147	129	113	99	89	83
3600	74	76	78	79	79	78	75	70	263	254	43	9	13	195	177	158	140	1 3	109	98	91
3700	68	7	72	74	75	75	73	2,0	65	58	48	35	1	205	188	170	15	136	1 1	109	10
3800	59	63	66	268	7	271	7	69	65	60	5	4	2 9	15	199	183	166	150	135	1	112
3900	250	54	57	60	63	265	66	66	64	61	55	47	37	2 5	211	196	180	165	15	137	126
4000	40	44	48	251	55	58	6	6	6	61	57	51	244	234	2	09	195	18	166	153	141
4100	8	33	37	4	246	25	54	57	58	59	58	255	49	242	33	222	10	196	183	170	158
4200	17	21	6	231	236	241	245	50	53	56	257	57	54	25	43	34	224	21	00	187	175
4300	204	2 9	14	19	5	30	36	4	47	5	55	57	58	56	52	246	38	8	217	05	193
4400	19	197	0	07	13	20	6	33	40	247	253	57	60	61	260	257	51	43	34	2 3	211
4500	180	185	190	195	202	9	216	4	33	241	249	256	61	265	67	266	263	258	50	4	29

Tl ti th T bl 1 I ∞ Add d C t t + ∞ Th ig i p iti

Tl q ti f tli T bl t b ld d t th t f l bl IV

SATELLITE II

Approximate Tables of Conjunction

VI Equation of Geocentric Conjunction Arguments β, γ Oc., Tr.

γ \ β	0^d	20^d	40^d	60^d	80^d	100^d	120^d	140^d	160^d	180^d	200^d	220^d	240^d	260^d	280^d	300^d	320^d	340^d	360^d	380^d	400^d
0^d	100	108	115	119	120	119	115	111	107	103	100	96	93	88	84	81	80	81	85	92	100
20	85	94	103	111	117	120	120	119	116	113	110	107	102	97	91	84	79	75	75	79	85
40	72	80	91	102	112	119	123	124	123	122	119	116	112	106	99	89	80	72	68	68	72
60	62	69	80	93	105	116	123	127	128	128	126	124	120	114	106	96	84	73	64	60	62
80	56	61	71	84	98	111	120	126	129	130	130	129	126	121	113	103	90	76	65	58	57
100	56	58	66	78	91	104	115	122	127	129	130	130	129	125	119	109	97	83	70	60	56
120	61	60	64	74	85	97	108	116	121	125	127	128	128	127	122	115	104	91	78	67	61
140	70	66	67	73	81	91	100	108	114	118	121	123	124	125	123	118	111	100	89	78	70
160	83	77	74	75	79	85	92	99	104	108	112	115	118	120	121	120	116	110	101	91	83
180	98	90	84	80	79	82	85	90	94	98	101	105	109	113	116	119	120	118	113	106	98
200	113	104	95	88	82	80	80	82	85	88	91	95	99	104	110	116	121	124	124	120	113
220	127	118	108	97	87	81	77	76	77	79	82	85	89	95	102	111	120	127	131	131	126
240	137	130	119	106	94	84	77	74	72	73	75	77	81	86	95	105	117	127	136	139	137
260	143	138	128	115	101	89	80	74	71	70	70	72	75	79	87	98	111	124	136	142	143
280	144	142	134	122	108	95	84	77	73	70	70	70	71	75	82	92	104	118	131	141	144
300	140	141	136	126	114	102	91	83	78	74	72	71	71	73	78	86	97	110	123	134	140
320	131	135	133	127	118	108	99	91	85	81	78	76	75	75	77	82	90	101	113	124	131
340	119	125	127	125	121	114	107	100	95	90	87	84	81	79	79	80	84	92	101	111	119
360	104	112	118	121	121	118	114	109	105	101	97	94	90	86	83	81	80	83	89	96	104
380	89	98	106	113	118	120	119	117	114	111	108	104	100	95	89	83	79	77	78	82	89
400	75	84	94	105	114	119	122	123	122	120	117	114	110	104	97	88	79	73	69	70	75

The unit in this Table equals $0^d.0001$. Added Constant: $0^d.0100$. The sign is positive.

The Equation of this Table to be added to that of Table IV.

SATELLITE II

Approximate Tables of Conjunction

VII Equations of Conjunction VIII

Ec, Oc, Sh, Tr

VII

δ	Equation	3 Δ
	d	
00	0 0150	− 19
1	131	19
2	1 3	18
3	96	16
4	81	14
5	68	1
06	0 0057	− 9
7	50	6
8	45	3
9	44	+ 1
10	46	4
11	0 005	+ 8
2	61	10
3	72	13
4	86	15
5	102	17
16	0 0120	+ 18
7	138	19
8	157	19
9	176	18
20	193	17
21	0 0210	+ 16
2	225	14
3	37	11
4	46	8
5	53	5
26	0 0256	+ 1
7	255	−
8	52	5
9	245	9
30	235	11
31	0 0223	− 14
2	08	16
3	191	18
4	173	18
5	155	19
36	0 0136	− 19
7	118	18
8	100	17
9	84	15
40	71	13
41	0 059	− 10
2	51	7
3	46	4
4	44	− 1
5	45	+ 3
46	0 0050	+ 7
7	58	10
8	69	12
9	8	15
50	0 0098	+ 17

Ald d O t t + 5

VIII

	Equation
	d
00	0 050
1	51
2	53
3	54
4	54
5	54
06	0 0053
7	5
8	51
9	50
10	48
11	0 0047
2	46
3	46
4	46
5	47
16	0 0048
7	49
8	50
9	52
20	53
21	0 0 54
2	54
3	54
4	53
5	5
26	0 0051
7	50
8	48
9	47
30	46
31	0 0046
2	46
3	47
4	48
5	49
36	0 0051
7	52
8	53
9	54
40	54
41	0 0054
2	52
3	53
4	51
5	49
46	0 0048
7	47
8	46
9	46
50	0 0046

Add d O t t + 005

Th Eq ti f T bl VII VIII t b dd d t th t I f T bl I O I m

SATELLITE II

Tables

of

Longitude on Jupiter's Orbit, Variation of the Radius Vector, and Latitude

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

IX Values at Epoch of Mean Longitude and the Arguments

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Date	Mean Long.	A	B	C	D	E	F	G	H	I	J	K	L
	°	d	d	d	d	d	d	d	d	d	d	d	d
1850·0	272·34315	5·61104	1·64	0·12	2·147	0·5911	0·247	223·78	451·85	205·04	253·48	1·34	2·03
1851·0	194·13116	3·96283	1·24	2·34	1·206	3·3459	3·020	187·62	359·18	87·74	132·89	0·12	3·18
***1852·0**	115·91917	2·31462	0·84	1·00	0·264	2·5493	2·242	151·46	266·50	452·74	12·30	0·66	0·84
1853·0	139·08194	1·66641	1·45	0·65	0·322	2·7528	2·463	116·31	174·83	336·44	378·30	0·44	2·99
1854·0	60·86995	0·01819	1·05	2·87	2·934	1·9562	1·685	80·15	82·15	219·14	257·71	0·98	0·65
1855·0	342·65796	5·42091	0·65	1·53	1·992	1·1596	0·906	43·99	447·15	101·83	137·12	1·53	1·81
***1856·0**	264·44597	3·77270	0·26	0·18	1·050	0·3630	0·128	7·84	354·48	466·83	16·53	0·31	2·96
1857·0	287·60875	3·12449	0·86	3·40	1·109	0·5664	0·350	373·84	262·80	350·53	382·53	0·08	1·62
1858·0	209·39676	1·47628	0·46	2·06	0·167	3·3212	3·123	337·68	170·13	233·23	261·95	0·63	2·77
1859·0	131·18477	6·87900	0·07	0·71	2·779	2·5246	2·344	301·52	77·45	115·93	141·35	1·17	0·43
***1860·0**	52·97278	5·23078	4·18	2·92	1·837	1·7280	1·566	265·37	442·45	480·93	20·76	1·71	1·58
1861·0	76·13555	4·58257	0·27	2·59	1·895	1·9314	1·788	230·21	350·78	364·63	386·76	1·49	0·24
1862·0	357·92356	2·93436	4·39	1·24	0·954	1·1348	1·009	194·05	258·10	247·33	266·17	0·27	1·39
1863·0	279·71157	1·28615	3·99	3·46	0·012	0·3382	0·231	157·89	165·43	130·02	145·58	0·81	2·54
***1864·0**	201·49958	6·68887	3·59	2·12	2·623	3·0930	3·004	121·74	72·75	12·72	24·99	1·36	0·20
1865·0	224·66235	6·04066	4·20	1·78	2·682	3·2964	3·225	86·58	438·75	378·72	390·99	1·13	2·36
1866·0	146·45036	4·39245	3·80	0·43	1·740	2·4998	2·447	50·42	346·08	261·42	270·40	1·68	0·01
1867·0	68·23837	2·74424	3·40	2·65	0·799	1·7033	1·669	14·27	253·40	144·12	149·81	0·46	1·17
***1868·0**	350·02638	1·09603	3·01	1·30	3·410	0·9067	0·890	379·27	160·73	26·82	29·22	1·00	2·32
1869·0	13·18915	0·44782	3·61	0·96	3·468	1·1101	1·112	344·11	69·06	392·82	395·22	0·78	0·98
1870·0	294·97716	5·85053	3·21	3·18	2·527	0·3135	0·334	307·95	434·06	275·51	274·63	1·32	2·13
1871·0	216·76517	4·20232	2·82	1·83	1·585	3·0683	3·106	271·80	341·38	158·21	154·04	0·10	3·28
***1872·0**	138·55319	2·55411	2·42	0·49	0·644	2·2717	2·328	235·64	248·71	40·91	33·45	0·64	0·94
1873·0	161·71596	1·90590	3·02	0·15	0·702	2·4751	2·550	200·48	157·03	406·91	399·45	0·42	3·09
1874·0	83·50397	0·25769	2·63	2·36	3·313	1·6785	1·771	164·33	64·36	289·61	278·86	0·97	0·75
1875·0	5·29198	5·66041	2·23	1·02	2·372	0·8819	0·993	128·17	429·36	172·31	158·27	1·51	1·91
***1876·0**	287·07999	4·01219	1·83	3·24	1·430	0·0853	0·215	92·01	336·68	55·00	37·68	0·29	3·06
1877·0	310·24276	3·36398	2·44	2·89	1·488	0·2887	0·436	56·85	245·01	421·00	403·68	0·06	1·72
1878·0	232·03077	1·71577	2·04	1·55	0·547	3·0435	3·209	20·70	152·33	303·70	283·09	0·61	2·87
1879·0	153·81878	0·06756	1·64	0·21	3·158	2·2469	2·431	385·70	59·66	186·40	162·51	1·15	0·53
***1880·0**	75·60679	5·47028	1·25	2·42	2·216	1·4504	1·652	349·54	424·66	69·10	41·92	1·70	1·68
1881·0	98·76956	4·82207	1·85	2·08	2·275	1·6538	1·874	314·38	332·98	435·10	407·92	1·47	0·34
1882·0	20·55757	3·17386	1·45	0·74	1·333	0·8572	1·096	278·23	240·31	317·80	287·33	0·25	1·49
1883·0	302·34558	1·52565	1·05	2·95	0·392	0·0606	0·317	242·07	147·63	200·49	166·74	0·80	2·64
***1884·0**	224·13359	6·92836	0·66	1·61	3·003	2·8154	3·090	205·91	54·96	83·19	46·15	1·34	0·30
1885·0	247·29637	6·28015	1·26	1·27	3·061	3·0188	3·312	170·76	420·96	449·19	412·15	1·12	2·46
1886·0	169·08438	4·63194	0·86	3·48	2·120	2·2222	2·534	134·60	328·28	331·89	291·56	1·66	0·11
1887·0	90·87239	2·98373	0·47	2·14	1·178	1·4256	1·755	98·44	235·61	214·59	170·97	0·44	1·27
***1888·0**	12·66040	1·33552	0·07	0·80	0·237	0·6290	0·977	62·29	142·93	97·29	50·38	0·98	2·42
1889·0	35·82317	0·68731	0·67	0·46	0·295	0·8324	1·198	27·13	51·26	463·29	416·38	0·76	1·08
1890·0	317·61118	6·09003	0·28	2·67	2·906	0·0358	0·420	392·13	416·26	345·99	295·79	1·30	2·23
1891·0	239·39919	4·44182	4·39	1·33	1·965	2·7906	3·193	355·97	323·58	228·68	175·20	0·08	3·38
***1892·0**	161·18720	2·79360	3·99	3·55	1·023	1·9940	2·415	319·82	230·91	111·38	54·61	0·63	1·04
1893·0	184·34997	2·14539	0·09	3·20	1·081	2·1974	2·636	284·66	139·23	477·38	420·61	0·40	3·19
1894·0	106·13798	0·49718	4·20	1·86	0·140	1·4009	1·858	248·50	46·56	360·08	300·02	0·95	0·85
1895·0	27·92599	5·89990	3·80	0·52	2·751	0·6043	1·080	212·34	411·56	242·78	179·43	1·49	2·01
***1896·0**	309·71400	4·25169	3·41	2·73	1·810	3·3591	0·301	176·19	318·88	125·48	58·84	0·27	3·16
1897·0	332·87677	3·60348	4·01	2·39	1·868	0·0111	0·523	141·03	227·21	9·17	424·84	0·05	1·82
1898·0	254·66478	1·95527	3·61	1·05	0·926	2·7659	3·296	104·87	134·53	374·17	304·25	0·59	2·97
1899·0	176·45280	0·30706	3·22	3·26	3·538	1·9693	2·517	68·72	41·86	256·87	183·66	1·13	0·63
1900·0	98·24081	5·70977	2·82	1·92	2·596	1·1727	1·739	32·56	406·86	139·57	63·07	1·68	1·78
Periods	...	7·05093	4·51	3·56	3·553	3·5514	3·551	401·16	457·67	482·30	485·59	1·77	3·50

Constant applied to each entry in Column 2: −1°·31000.

SATELLITE II

Tables of Longıtude, Latıtude, and Radıus Vector

IX Values at Epoch of Mean Longıtude and the Arguments

5	6	7	8	9	--			3	4	5	6	7	8
M	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**
	d						d		l	d			d
058	0 40	0 16	**1850 0**	3 13941	0 3167	0 71	0 95	1 04479	3	1 83	2 3	3 1	2 7
1 70	1 39	3 5	**1851 0**	36777	1 3794	1 7 6	18	0 39122	9	1 084	1 56	0 5	1 3
083	39	77	**1852 0**	1 59613	0 6668	967	1 19	3 8769	6	0 338	0 79	1 4	3 5
0 595	0 88	3 8	**1853 0**	1 8 448	0 954	1 08	1 42	0 08409	3 3	591	1 03	3 2	3 1
1 6 8	1 87	80	**1854 0**	1 05 84	0 416	0 449	0 65	2 98055	3 0	3 396	0 26	0 6	1 8
62	87	31	**1855 0**	0 81 0	1 3043	1 466	1 66	32698	7	2 649	3 05	1 5	0 4
0 133	0 36	1 83	**1856 0**	3 06074	0 5917	0 707	0 89	1 67341	2 4	1 9 3	28	3	6
146	36	34	**1857 0**	3 8909	0 8791	948	1 1	01985	3 1	157	51	0 7	2
3 158	3 35	1 85	**1858 0**	51745	0 1665	0 189	0 35	1 36628	8	1 410	1 75	1 6	0 8
670	0 85	1 37	**1859 0**	1 74581	1 2 92	1 05	1 36	0 71 71	2 5	0 664	0 98	5	3 0
1 683	1 84	0 88	***1860 0**	0 97417	0 5166	0 446	0 59	0 5914	3	3 469	0 2	3 3	1 6
0 195	0 34	1 4	**1861 0**	1 20 5	0 8040	0 687	0 8	0 40557	3 0	0 171	0 45	1 7	1 3
8	1 33	0 91	**1862 0**	0 43088	0 915	1 704	0 05	3 30 04	2 7	976	3 24	2 6	3 5
2 20	3	43	**1863 0**	3 1 4	1 154	0 945	1 06	64847	2 4	2 30	47	3 4	1
3 3	3 3	3 5	**1864 0**	43878	0 1416	0 186	0 29	1 99490	1	1 483	1 71	0 8	0 7
1 745	1 81	0 45	**1865 0**	66713	7 90	0 427	0 52	34133	8	1 737	1 94	2 7	0 3
2 757	8	3 55	**1866 0**	1 89549	0 0164	1 443	1 53	1 68776	2 5	0 991	1 18	0 1	2 5
0 70	0 30	3 07	**1867 0**	1 1 385	1 0791	0 684	0 76	1 03419	2 2	0 244	41	0 9	1 1
1 83	1 30	58	***1868 0**	0 35 20	0 3665	1 701	1 77	0 38062	1 9	3 049	3 20	1 8	3 3
3 295	3 29	3 9	**1869 0**	0 58056	0 6539	0 166	23	0 72705	2 7	3 303	3 43	0 2	3 0
0 808	0 79	2 61	**1870 0**	3 36010	1 7166	1 183	1 23	0 07348	2 4	2 556	67	1 0	1 6
1 8 0	1 78	1	**1871 0**	58846	1 0040	0 424	0 46	2 96995	2 1	1 810	1 91	1 9	0 2
83	2 78	1 64	***1872 0**	1 81681	0 2914	1 441	1 47	31638	1 8	1 064	1 14	2 8	4
1 345	1 27	2 15	**1873 0**	04517	0 5788	1 68	1 69	66281	5	1 317	1 37	1	2 0
357	6	1 66	**1874 0**	1 7353	1 6415	0 9 3	0 94	009 4	2 2	0 571	0 61	2 0	0 7
3 369	3 6	1 12	**1875 0**	0 5 189	0 9 89	0 164	17	1 35567	1 9	3 376	3 39	2 9	2 8
0 882	0 75	0 69	***1876 0**	3 814	0 2163	1 180	1 17	0 70 10	1 6	6 9	63	0 3	1 5
2 894	75	1 1	**1877 0**	3 50978	0 5037	1 4 1	1 41	1 01854	3	2 883	86	2	1 1
0 4 7	0 24	0 7	**1878 0**	73814	1 5664	0 66	64	0 39197	2 1	2 137	2 10	3 0	3 3
1 420	1 24	0 24	**1879 0**	1 96650	0 8538	1 679	1 64	3 29143	1 8	1 390	1 33	0 4	1 9
2 43	2 23	3 33	***1880 0**	1 19485	0 1412	0 920	0 88	63786	1 5	0 644	0 56	1 3	0 5
0 945	0 73	0 26	**1881 0**	1 4 3 1	0 4286	1 160	1 11	2 984 9	2 2	0 898	0 80	3 1	0 2
1 957	1 72	3 36	**1882 0**	0 65157	1 4913	0 402	0 34	2 33073	1 9	0 151	0 03	0 5	2 4
2 969	2 71	88	**1883 0**	3 43111	0 7787	1 418	1 35	1 67716	1 6	2 956	82	1 4	1 0
0 48	1	39	***1884 0**	2 65946	0 661	0 659	0 58	1 02359	1 3	2 10	2 05	2 3	3 1
2 494	20	2 90	**1885 0**	2 8878	3535	0 900	0 81	1 37002	2	2 463	2 29	0 6	2 8
0 007	3 0	4	**1886 0**	11618	1 416	0 141	0 04	71645	1 7	1 717	1 5	1 5	1 4
1 019	0 69	1 93	**1887 0**	1 34453	0 7036	1 158	1 05	0 06 88	1 5	0 970	76	2 4	0 1
2 031	1 69	1 45	**1888 0**	0 57289	1 7664	0 399	28	95935	1 2	0 224	3 54	3 2	2 2
0 545	18	1 96	**1889 0**	0 801 5	0 785	640	0 51	3 30578	1 9	0 478	0 23	1 6	1 9
1 557	1 18	1 47	**1890 0**	0 961	1 3412	1 656	1 52	65 21	1 6	3 28	3 01	2 5	0 5
569	17	0 99	**1891 0**	80914	0 6286	897	0 75	1 99864	1 3	2 536	2 25	3 3	2 7
08	3 16	50	**1892 0**	0375	1 6913	0 138	1 76	1 34507	1 0	1 790	1 48	7	1 3
2 094	1 66	1 0	**1893 0**	6586	0 2034	379	0 1	1 69150	1 7	043	1 72	2 6	0 9
3 1 7	2 65	0 53	**1894 0**	1 49422	1 661	1 396	1 2	1 03793	1 4	1 297	0 95	0 0	3 1
0 618	15	0 05	**1895 0**	0 72 57	0 5535	0 637	0 45	0 38436	1 1	0 551	0 19	8	1 7
1 631	1 14	3 14	**1896 0**	3 50 11	1 616	1 653	1 46	3 28083	0 9	3 355	2 97	1 7	0 4
0 144	3 14	0 07	**1897 0**	0 179 9	0 1 83	0 119	1 69	0 077 3	1 6	0 058	3 21	0 1	0
1 156	63	3 7	**1898 0**	95883	1 1910	1 135	92	2 97369	1 3	863	44	0 9	2 2
2 168	1 63	2 69	**1899 0**	2 18718	0 4784	0 376	0 15	32012	1 0	116	1 68	1 8	0 8
3 181	6	2 20	**1900 0**	1 41554	1 5411	1 393	1 16	1 66655	0 7	1 370	0 91	7	3 0
3 500	3 50	3 58	Pe ıods	3 55118	1 7753	1 776	1 78	3 55003	3 5	3 551	3 55	3 5	3 6

T fi d th T L git l d dt J pt O bit tl t i f C l m m t b ppl m ted by th ı tl f T bl XII XXXII

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

IX *continued* **Values at Epoch of Mean Longitude and the Arguments**

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Date	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**
	°	d	d	d	d	d	d	d	d	d	d	d	d
1900.0	98.24081	5.70977	2.82	1.92	2.596	1.1727	1.739	32.56	406.86	139.57	63.07	1.68	1.78
1901.0	20.02882	4.06156	2.42	0.58	1.654	0.3761	0.961	397.56	314.19	22.27	428.07	0.46	2.93
1902.0	301.81683	2.41335	2.03	2.79	0.713	3.1309	0.182	361.40	221.51	387.27	307.48	1.00	0.59
1903.0	223.60484	0.76514	1.63	1.45	3.324	2.3343	2.955	325.25	128.84	269.97	186.89	1.55	1.74
***1904.0**	145.39285	6.16786	1.23	0.11	2.382	1.5377	2.177	289.09	36.16	152.66	66.30	0.32	2.90
1905.0	168.55562	5.51965	1.84	3.32	2.441	1.7411	2.398	253.93	402.16	36.36	432.30	0.10	1.56
1906.0	90.34363	3.87144	1.44	1.98	1.499	0.9445	1.620	217.78	309.49	401.36	311.71	0.64	2.71
1907.0	12.13164	2.22323	1.04	0.64	0.558	0.1480	0.842	181.62	216.81	284.06	191.12	1.19	0.37
***1908.0**	293.91965	0.57501	0.65	2.85	3.169	2.9028	0.063	145.46	124.14	166.76	70.53	1.73	1.52
1909.0	317.08242	6.97773	1.25	2.51	3.227	3.1062	0.285	110.31	32.46	50.46	436.53	1.51	0.18
1910.0	238.87043	5.32952	0.85	1.17	2.286	2.3096	3.058	74.15	397.46	415.46	315.94	0.29	1.33
1911.0	160.65844	3.68131	0.46	3.38	1.344	1.5130	2.280	37.99	304.79	298.15	195.35	0.83	2.48
***1912.0**	82.44645	2.03310	0.06	2.04	0.403	0.7164	1.501	1.84	212.11	180.85	74.76	1.38	0.14
1913.0	105.60922	1.38489	0.66	1.70	0.461	0.9198	1.723	367.84	120.44	64.55	440.76	1.15	2.29
1914.0	27.39723	6.78760	0.26	0.36	3.072	0.1232	0.944	331.68	27.76	429.55	320.17	1.70	3.45
1915.0	309.18525	5.13939	4.38	2.57	2.131	2.8780	0.166	295.52	392.76	312.25	199.58	0.47	1.11
***1916.0**	230.97326	3.49118	3.98	1.23	1.189	2.0814	2.939	259.37	300.09	194.95	78.99	1.02	2.26
1917.0	254.13603	2.84297	0.07	0.89	1.247	2.2848	3.161	224.21	208.41	78.65	444.99	0.80	0.92
1918.0	175.92404	1.19476	4.19	3.10	0.306	1.4882	2.382	188.05	115.74	443.65	324.40	1.34	2.07
1919.0	97.71205	6.59748	3.79	1.76	2.917	0.6916	1.604	151.90	23.06	326.34	203.81	0.12	3.22
***1920.0**	19.50006	4.94927	3.39	0.42	1.976	3.4465	0.826	115.74	388.06	209.04	83.22	0.66	0.88
1921.0	42.66283	4.30106	4.00	0.07	2.034	0.0985	1.047	80.58	296.39	92.74	449.22	0.44	3.03
1922.0	324.45084	2.65285	3.60	2.29	1.092	2.8533	0.269	44.42	203.71	457.74	328.63	0.98	0.69
1923.0	246.23885	1.00464	3.20	0.95	0.151	2.0567	3.042	8.27	111.04	340.44	208.05	1.53	1.84
***1924.0**	168.02686	6.40735	2.81	3.16	2.762	1.2601	2.263	373.27	18.36	223.14	87.46	0.31	3.00
1925.0	191.18963	5.75914	3.41	2.82	2.820	1.4635	2.485	338.11	384.36	106.83	453.46	0.08	1.66
1926.0	112.97764	4.11093	3.01	1.48	1.879	0.6669	1.707	301.95	291.69	471.83	332.87	0.63	2.81
1927.0	34.76565	2.46272	2.62	0.13	0.937	3.4217	0.928	265.79	199.01	354.53	212.28	1.17	0.47
***1928.0**	316.55365	0.81451	2.22	2.35	3.548	2.6251	0.150	229.64	106.34	237.23	91.69	1.72	1.62
1929.0	339.71644	0.16630	2.82	2.01	0.054	2.8285	0.372	194.48	14.66	120.93	457.69	1.49	0.28
1930.0	261.50445	5.56901	2.43	0.66	2.665	2.0319	3.144	158.32	379.66	3.63	337.10	0.27	1.43
1931.0	183.29246	3.92080	2.03	2.88	1.724	1.2353	2.366	122.17	286.99	368.63	216.51	0.81	2.58
***1932.0**	105.08047	2.27259	1.63	1.54	0.782	0.4387	1.588	86.01	194.32	251.32	95.92	1.36	0.24
1933.0	128.24324	1.62438	2.24	1.19	0.841	0.6421	1.809	50.85	102.64	135.02	461.92	1.14	2.39
1934.0	50.03125	7.02710	1.84	3.41	3.452	3.3970	1.031	14.70	9.97	17.72	341.33	1.68	0.05
1935.0	331.81926	5.37889	1.44	2.07	2.510	2.6004	0.253	379.70	374.97	382.72	220.74	0.47	1.21
***1936.0**	253.60727	3.73068	1.05	0.72	1.569	1.8038	3.026	343.54	282.29	265.42	100.15	1.00	2.36
1937.0	276.77004	3.08247	1.65	0.38	1.627	2.0072	3.247	308.38	190.62	149.12	466.15	0.78	1.02
1938.0	198.55805	1.43426	1.25	2.60	0.685	1.2106	2.469	272.23	97.94	31.81	345.56	1.32	2.17
1939.0	120.34606	6.83697	0.86	1.25	3.297	0.4140	1.690	236.07	5.27	396.81	224.97	0.10	3.32
***1940.0**	42.13407	5.18876	0.46	3.47	2.355	3.1688	0.912	199.91	370.27	279.51	104.38	0.64	0.98
1941.0	65.29684	4.54055	1.06	3.13	2.414	3.3722	1.134	164.75	278.59	163.21	470.38	0.42	3.13
1942.0	347.08486	2.89234	0.67	1.78	1.472	2.5756	0.355	128.60	185.92	45.91	349.79	0.97	0.79
1943.0	268.87287	1.24413	0.27	0.44	0.530	1.7790	3.128	94.44	93.24	410.91	229.20	1.51	1.94
***1944.0**	190.66088	6.64685	4.38	2.66	3.142	0.9824	2.350	56.28	0.57	293.61	108.61	0.29	3.10
1945.0	213.82365	5.99864	0.47	2.31	3.200	1.1858	2.572	21.13	366.57	177.31	474.61	0.06	1.76
1946.0	135.61166	4.35042	0.08	0.97	2.258	0.3892	1.793	386.13	273.89	60.00	354.01	0.61	2.91
1947.0	57.39967	2.70221	4.19	3.19	1.317	3.1441	1.015	349.97	181.22	425.00	233.43	1.15	0.57
***1948.0**	339.18768	1.05400	3.80	1.84	0.375	2.3475	0.236	313.81	88.54	307.70	112.84	1.70	1.72
1949.0	2.35045	0.40579	4.40	1.50	0.434	2.5509	0.458	278.66	454.54	191.40	478.84	1.47	0.38
1950.0	284.13846	5.80851	4.00	0.16	3.045	1.7543	3.231	242.50	361.87	74.10	358.25	0.25	1.53
Periods	...	7.05093	4.51	3.56	3.553	3.5514	3.551	401.16	457.67	482.30	485.59	1.77	3.50

Constant applied to each entry in Column 2: $-1^\circ.31000$.

Tables of Longitude, Latitude, and Radius Vector

IX *continued* Values at Epoch of Mean Longitude and the Arguments

5	6	7	8	9				3	4	5	6	7	8
M	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**
	l			d			d		d	d		d	
3 181	2 6	20	**1900 0**	1 41554	1 5411	1 393	1 16	1 66655	0 7	1 370	0 91	7	3 0
0 693	0 11	1 71	**1901 0**	0 64390	0 8 85	0 634	0 39	1 01 98	4	0 6 4	0 14	0 1	1 6
1 706	1 11	1 3	**1902 0**	3 42344	0 159	1 651	1 4	3594	0 1	3 428	2 93	0 9	0 3
718	2 10	0 74	**1903 0**	65 79	1 1786	0 89	0 63	3 5588	3 4	682	17	1 8	2 4
0 31	3 10	26	**1904 0**	1 88015	4660	13	1 64	2 60 31	3 1	1 936	1 40	2 7	1 1
43	1 59	0 77	**1905 0**	2 10851	0 7534	0 374	09	2 94874	0 3	189	1 63	1 1	0 7
3 56	2 59	9	**1906 0**	1 33686	0 04 8	1 390	1 10	9517	0	1 443	0 87	1 9	2 9
0 768	0 08	3 38	**1907 0**	0 565 2	1 1035	0 631	33	1 64161	3	0 697	0 10	8	1 5
1 780	1 8	90	**1908 0**	3 34476	39 9	1 648	1 34	0 98804	2 9	3 501	89	0 2	0 1
0 93	3 07	3 41	**1909 0**	0 0 194	0 6783	113	1 57	1 33447	0 1	0 05	3 12	2 0	3 3
1 305	56	93	**1910 0**	2 80147	1 741	1 130	0 80	0 68090	3 4	3 009	2 36	2 9	2 0
318	1 56	44	**1911 0**	2 02983	1 284	0 371	03	0 0 733	3 1	2 62	1 59	0 3	0 6
3 33	55	1 95	**1912 0**	1 5819	0 3158	1 387	1 04	2 9 380	8	1 516	0 83	1 2	8
1 844	1 5	47	**1913 0**	1 48655	0 6 33	1 628	1 7	3 270 3	3 5	1 770	1 06	3 0	2 4
856	4	1 98	**1914 0**	0 7149	1 6660	869	0 50	61666	3	1 3	0 30	0 4	1 0
0 368	3 04	1 50	**1915 0**	3 49444	0 9534	0 110	1 51	1 96309	2 9	0 277	3 08	1 3	3 2
1 381	53	1 1	***1916 0**	7 280	0 408	1 1 7	0 74	1 30952	6	3 081	32	2 1	1 8
3 393	53	1 52	**1917 0**	95116	0 528	1 368	0 97	1 65595	3 3	3 335	2 55	0 5	1 5
0 906	0 0	1 04	**1918 0**	17951	1 59 9	0 609	0 1	1 00238	3 0	589	1 79	1 4	0 1
1 918	1 01	0 55	**1919 0**	1 40787	0 8783	1 6 5	1 21	0 34881	2 8	1 84	1 02	2 3	2 3
2 930	01	07	***1920 0**	63623	0 1657	0 866	0 44	3 4528	2 5	1 096	0 6	3 1	0 9
1 443	0 50	0 58	**1921 0**	0 86458	0 4531	1 107	0 68	0 04168	3 2	1 350	0 49	1 5	5
2 455	1 50	0 10	**1922 0**	0 09 94	1 5158	0 348	1 68	93814	2 9	0 603	3 8	2 4	7
3 468	49	3 19	**1923 0**	87 48	0 8 32	1 365	0 91	2 28457	2 6	3 408	2 51	3 2	1 3
98	3 49	2 71	**1924 0**	10084	0 0906	0 606	0 15	1 631 0	2 3	662	1 75	0 6	3 5
993	1 98	3 2	**1925 0**	3 919	0 3780	847	0 38	1 97743	3 0	2 915	1 98	2 5	3 2
0 505	98	2 74	**1926 0**	1 55755	1 4407	0 088	1 38	1 3 387	2 7	169	1 21	3 4	1 8
1 517	0 47	2 25	**1927 0**	0 78591	0 7 81	1 104	0 6	0 670 9	2 5	1 4 3	0 45	0 7	0 4
2 530	1 47	1 76	**1928 0**	0 014 7	0 0155	0 345	1 62	0 01673	2 2	0 676	3 23	1 6	2 6
1 042	3 45	8	**1929 0**	0 426	0 30 9	0 586	0 08	0 36316	9	930	3 47	0 0	2 2
055	0 95	1 79	**1930 0**	3 02216	1 3656	1 603	1 09	3 25962	2 6	0 184	2 70	0 9	0 9
3 067	1 95	1 31	**1931 0**	25052	0 6530	0 844	0 32	2 60606	2 3	2 988	1 94	1 7	3 0
0 580	2 94	0 8	**1932 0**	1 47888	1 7157	0 085	1 33	1 95249	0	2 242	1 17	2 6	1 7
2 592	1 44	1 34	**1933 0**	1 707 3	0 278	3 6	1 56	2 2989	2 7	2 496	1 41	1 0	1 3
0 104	43	0 85	**1934 0**	0 93559	1 905	1 34	0 79	1 64535	2 4	1 749	0 64	1 8	3 5
1 117	3 43	0 36	**1935 0**	0 16395	0 5779	583	0 0	0 99178	2 1	1 003	3 43	2 7	2 1
2 129	0 9	3 46	***1936 0**	2 94349	1 6406	1 6 0	1 03	0 33821	1 9	0 57	2 66	0 1	0 7
0 642	2 92	0 39	**1937 0**	3 17184	0 15 7	0 065	1 26	0 68464	2 6	0 510	90	2 0	0 4
1 654	0 41	3 49	**1938 0**	40 20	1 2154	1 08	49	0 03107	2 3	3 315	2 13	8	2 5
667	1 4	3 0	**1939 0**	1 6 856	5028	0 3 3	1 50	2 9 754	2	569	1 37	0 2	1 2
0 180	2 40	52	**1940 0**	85691	1 5656	1 340	0 73	27397	1 7	1 8	0 60	1 1	3 4
192	89	3 03	**1941 0**	1 85 7	0 0777	1 581	96	6 040	4	076	0 84	2 9	3 0
3 5	1 89	55	**1942 0**	0 31363	1 14 4	0 8	0 19	1 96683	2 1	1 33	0 07	0 3	1 6
0 717	2 88	06	**1943 0**	3 09317	0 4278	0 063	1 20	1 31326	1 8	0 583	86	1 2	0 2
1 730	38	1 57	**1944 0**	3 152	1 4905	1 079	0 43	0 65969	1 5	3 388	9	2 1	2 4
0 4	37	09	**1945 0**	2 54988	0 00 6	1 3 0	0 66	1 00612	2 3	0 091	2 33	0 4	2 1
1 255	3 37	1 60	**1946 0**	1 77824	1 0653	0 561	1 67	0 35256	2 0	2 895	1 56	1 3	0 7
267	0 86	1 1	**1947 0**	1 00660	0 3527	1 578	0 90	3 249 2	1 7	2 149	0 79	2 2	9
3 79	1 85	0 63	**1948 0**	0 3495	1 4154	0 819	0 13	2 59545	1 4	1 40	0 03	3 0	1 5
1 792	35	1 15	**1949 0**	0 46331	1 70 8	1 060	0 36	2 94188	2 1	1 656	0 6	1 4	1 1
2 804	1 34	0 66	**1950 0**	3 24285	0 990	301	1 37	2 28831	1 8	0 910	3 05	2 3	3 3
3 500	3 50	3 58	Periods	3 55118	1 7753	1 776	1 78	3 55003	3 5	3 551	3 55	3 5	3 6

T fi d th T L git l d d to J p t O bit th t i f C lum m t b ppl m t d by th q ti f T bl XII XXXII

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

IX *continued* **Values at Epoch of Mean Longitude and the Arguments**

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Date	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**
	°	d	d	d	d	d	d	d	d	d	d	d	d
1950·0	284·13846	5·80851	4·00	0·16	3·045	1·7543	3·231	242·50	361·87	74·10	358·25	0·25	1·53
1951·0	205·92647	4·16030	3·61	2·38	2·103	0·9577	2·453	206·34	269·19	439·10	237·66	0·80	2·68
***1952·0**	127·71448	2·51209	3·21	1·03	1·162	0·1611	1·674	170·19	176·52	321·80	117·07	1·34	0·34
1953·0	150·87725	1·86388	3·81	0·69	1·220	0·3645	1·896	135·03	84·84	205·49	483·07	1·12	2·49
1954·0	72·66526	0·21567	3·41	2·91	0·278	3·1193	1·118	98·87	449·84	88·19	362·48	1·66	0·15
1955·0	354·45327	5·61838	3·02	1·56	2·890	2·3227	0·339	62·72	357·17	453·19	241·89	0·44	1·31
***1956·0**	276·24128	3·97017	2·62	0·22	1·948	1·5261	3·112	26·56	264·49	335·89	121·30	0·98	2·46
1957·0	299·40406	3·32196	3·22	3·44	2·007	1·7295	3·334	392·56	172·82	219·59	1·71	0·76	1·12
1958·0	221·19207	1·67375	2·83	2·09	1·065	0·9329	2·555	356·40	80·14	102·29	366·71	1·30	2·27
1959·0	142·98008	0·02554	2·43	0·75	0·123	0·1363	1·777	320·24	445·14	467·29	246·12	0·08	3·42
***1960·0**	64·76809	5·42826	2·03	2·97	2·735	2·8912	0·999	284·09	352·47	349·98	125·53	0·63	1·08
1961·0	87·93086	4·78005	2·64	2·62	2·793	3·0946	1·220	248·93	260·79	233·68	5·94	0·40	3·23
1962·0	9·71887	3·13183	2·24	1·28	1·851	2·2980	0·442	212·77	168·12	116·38	370·94	0·95	0·89
1963·0	291·50688	1·48362	1·84	3·50	0·910	1·5014	3·215	176·62	75·45	481·38	250·35	1·49	2·04
***1964·0**	213·29489	6·88634	1·45	2·15	3·521	0·7048	2·436	140·46	440·45	364·08	129·76	0·27	3·20
1965·0	236·45766	6·23813	2·05	1·81	0·027	0·9082	2·658	105·30	348·77	247·78	10·17	0·04	1·86
1966·0	158·24567	4·58992	1·65	0·47	2·638	0·1116	1·880	69·15	256·10	130·48	375·17	0·59	3·01
1967·0	80·03368	2·94171	1·26	2·68	1·696	2·8664	1·101	32·99	163·42	13·17	254·59	1·13	0·67
***1968·0**	1·82169	1·29350	0·86	1·34	0·755	2·0698	0·323	397·99	70·75	378·17	134·00	1·68	1·82
1969·0	24·98447	0·64529	1·46	1·00	0·813	2·2732	0·545	362·83	436·75	261·87	14·41	1·46	0·48
1970·0	306·77248	6·04800	1·07	3·21	3·424	1·4766	3·318	326·68	344·07	144·57	379·41	0·23	1·63
1971·0	228·56049	4·39979	0·67	1·87	2·483	0·6800	2·539	290·52	251·40	27·27	258·82	0·78	2·78
***1972·0**	150·34850	2·75158	0·27	0·53	1·541	3·4349	1·761	254·36	158·72	392·27	138·23	1·32	0·44
1973·0	173·51127	2·10337	0·88	0·19	1·600	0·0868	1·982	219·20	67·05	275·97	18·64	1·10	2·59
1974·0	95·29928	0·45516	0·48	2·40	0·658	2·8417	1·204	183·05	432·05	158·66	383·64	1·64	0·25
1975·0	17·08729	5·85788	0·08	1·06	3·269	2·0451	0·426	146·89	339·37	41·36	263·05	0·42	1·41
***1976·0**	298·87530	4·20967	4·20	3·27	2·328	1·2485	3·199	110·73	246·70	406·36	142·46	0·97	2·56
1977·0	322·03807	3·56146	0·29	2·93	2·386	1·4519	3·420	75·58	155·02	290·06	22·87	0·74	1·22
1978·0	243·82608	1·91324	4·40	1·59	1·444	0·6553	2·642	39·42	62·35	172·76	387·87	1·29	2·37
1979·0	165·61409	0·26503	4·01	0·25	0·503	3·4101	1·864	3·26	427·35	55·46	267·28	0·06	0·02
***1980·0**	87·40210	5·66775	3·61	2·46	3·114	2·6135	1·085	368·26	334·67	420·46	146·69	0·61	1·18
1981·0	110·56487	5·01954	4·21	2·12	3·172	2·8169	1·307	333·11	243·00	304·15	27·10	0·38	3·33
1982·0	32·35288	3·37133	3·82	0·78	2·231	2·0203	0·528	296·95	150·32	186·85	392·10	0·93	0·99
1983·0	314·14089	1·72312	3·42	2·99	1·289	1·2237	3·301	260·79	57·65	69·55	271·51	1·47	2·14
***1984·0**	235·92890	0·07491	3·02	1·65	0·348	0·4271	2·523	224·64	422·65	434·55	150·92	0·25	3·30
1985·0	259·09168	6·47762	3·62	1·31	0·406	0·6305	2·745	189·48	330·97	318·25	31·33	0·03	1·96
1986·0	180·87969	4·82941	3·23	3·52	3·017	3·3854	1·966	153·32	238·30	200·95	396·33	0·57	3·11
1987·0	102·66770	3·18120	2·83	2·18	2·076	2·5888	1·188	117·16	145·62	83·64	275·74	1·12	0·77
***1988·0**	24·45571	1·53299	2·43	0·84	1·134	1·7922	0·410	81·01	52·95	448·64	155·15	1·66	1·92
1989·0	47·61848	0·88478	3·04	0·50	1·193	1·9956	0·631	45·85	418·95	332·34	35·56	1·44	0·58
1990·0	329·40649	6·28750	2·64	2·71	0·251	1·1990	3·404	9·69	326·27	215·04	400·56	0·21	1·73
1991·0	251·19450	4·63929	2·24	1·37	2·862	0·4024	2·626	374·69	233·60	97·74	279·97	0·76	2·88
***1992·0**	172·98251	2·99108	1·85	0·03	1·921	3·1572	1·847	338·54	140·92	462·74	159·38	1·30	0·54
1993·0	196·14528	2·34287	2·45	3·24	1·979	3·3606	2·069	303·38	49·25	346·44	39·79	1·08	2·69
1994·0	117·93329	0·69465	2·05	1·90	1·037	2·5640	1·291	267·22	414·25	229·14	404·79	1·63	0·35
1995·0	39·72130	6·09737	1·66	0·56	0·096	1·7674	0·512	231·07	321·58	111·83	284·20	0·40	1·51
***1996·0**	321·50931	4·44916	1·26	2·77	2·707	0·9708	3·285	194·91	228·90	476·83	163·61	0·95	2·66
1997·0	344·67209	3·80095	1·86	2·43	2·766	1·1742	3·507	159·75	137·23	360·53	44·02	0·72	1·32
1998·0	266·46010	2·15274	1·47	1·09	1·824	0·3776	2·728	123·60	44·55	243·23	409·02	1·27	2·47
1999·0	188·24811	0·50453	1·07	3·30	0·882	3·1325	1·950	87·44	409·55	125·93	288·43	0·04	0·13
***2000·0**	110·03612	5·90724	0·67	1·96	3·494	2·3359	1·172	51·28	316·88	8·63	167·84	0·59	1·28
Periods	...	7·05093	4·51	4·56	3·553	3·5514	3·551	401·16	457·67	482·30	485·59	1·77	3·50

Constant applied to each entry in Column 2: $-1^{\circ}\!\cdot\!31000$.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

IX *continued* **Values at Epoch of Mean Longitude and the Arguments**

5	6	7	8	9				3	4	5	6	7	8
M	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**
											d	d	d
8 4	1 34	0 66	**1950 0**	3 24 85	99	0 301	1 37	28831	1 8	0910	3 05	2 3	3 3
0 317	2 34	17	**1951 0**	471 1	0 2776	1 317	0 60	1 63475	1 5	0 164	8	3	1 9
1 3 9	3 33	3 7	***1952 0**	1 69956	1 34 3	558	1 61	98118	1	968	1 5	0 5	6
3 341	1 83	0	**1953 0**	1 9 79	1 6 77	0 799	0 07	1 3 761	1 9	3	1 75	4	0
0 854	8	3 30	**1954 0**	1 156 8	9151	040	1 07	67404	1 7	2 475	0 99	3 3	4
1 866	0 32	2 81	**1955 0**	0 38463	0 2 5	1 57	30	0 0 047	1 4	1 729	0 2	0 6	1 0
879	1 31	2 33	**1956 0**	3 16417	1 65	0 98	1 31	2 91694	1 1	0 983	3 01	1 5	3
1 391	3 3	84	**1957 0**	3 39 53	1 55 6	539	1 54	3 6337	1 8	1 36	3 24	3 4	8
404	8	36	**1958 0**	6 089	0 8400	1 555	0 77	2 6 980	1 5	0 490	48	0 8	1 5
3 416	1 79	1 87	**1959 0**	1 849 4	1274	0 796	0 01	1 956 3	1 2	3 95	1 71	1 6	0 1
929	79	1 38	**1960 0**	1 7760	1 1901	0 037	1 01	1 30 66	0 9	548	95	2 5	2 3
941	8	1 9	**1961 0**	1 30596	1 4775	0 78	1 4	1 64909	1 6	802	1 18	0 9	1 9
0 454	8	1 41	**1962 0**	5343	0 7649	1 95	48	0 9955	1 3	2 056	4	1 7	5
1 466	3 7	0 93	**1963 0**	3 31385	05 3	0 536	1 48	0 34195	1 1	1 309	3 0	2 6	2 7
478	77	0 44	**1964 0**	54 1	1 1150	1 55	0 7	3 3842	0 8	0 563	2 44	3 5	1 3
0 99	76	0 96	**1965 0**	2 77057	1 40 4	0 018	0 95	0 03481	1 5	0 817	67	1 9	1 0
003	0 25	0 47	**1966 0**	1 99893	0 6898	1 034	18	93128	1	0 070	1 91	2 7	3 1
3 016	1 25	3 57	**1967 0**	1 27 8	1 75 6	0 275	1 19	2 7771	0 9	875	1 14	0 1	1 8
0 5 8	4	3 08	***1968 0**	45564	1 0400	1 92	0 4	1 62414	0 6	129	0 37	1 0	0 4
2 541	0 74	0 1	**1969 0**	0 684	1 3 74	1 533	0 65	1 97057	1 3	2 38	0 61	8	0 0
0 053	1 73	3 11	**1970 0**	3 46354	0 6148	0 774	1 66	1 3170	1 0	1 636	3 40	0 2	2 2
1 066	73	6	**1971 0**	69189	1 6775	0 15	0 89	0 66344	0 7	0 890	2 63	1 1	0 8
078	2	2 14	***1972 0**	1 9 0 5	0 9649	1 32	0 1	0 0 987	0 5	0 143	1 86	2 0	3 0
0 591	22	65	**1973 0**	2 14861	1 5 3	1 73	0 35	0 35630	1 2	0 397	10	0 3	2 7
1 603	3 1	17	**1974 0**	1 37696	0 5397	0 514	1 36	3 5 76	9	3 02	1 33	1	1 3
2 616	0 7	1 68	**1975 0**	6053	1 6024	1 530	59	59919	0 6	2 455	0 57	2 1	3 5
0 128	1 70	1 0	***1976 0**	3 38486	0 8898	0 771	1 60	1 94563	0 3	1 709	3 35	9	2 1
141	0 19	1 71	**1977 0**	0 06 04	1 1772	1 01	0 05	29 06	1 0	1 963	0 04	1 3	1 7
3 153	1 19	1 22	**1978 0**	2 84157	0 4646	0 53	1 06	1 63849	0 7	1 216	2 82	2 2	0 4
0 665	2 18	0 73	**1979 0**	6993	1 5273	1 70	0 29	0 9849	0 4	0 470	06	3 1	2 5
1 678	3 18	0 5	***1980 0**	1 98 9	0 8147	0 511	1 30	0 33135	0 1	3 274	1 29	0 4	1
0 19	1 67	77	**1981 0**	1 5 665	1 10 1	0 75	1 53	0 67778	0 9	3 5 8	1 53	2 3	0 8
1 03	67	0 8	**1982 0**	0 755 0	3895	1 769	0 76	0 02421	0 6	2 782	0 76	3 2	3 0
15	16	3 38	**1983 0**	3 53454	1 45	1 009	1 77	2 9 068	0 3	2 035	0 0	0 5	1 6
3 28	1 16	89	**1984 0**	76 90	0 7396	0 50	1 0	2 26711	0 0	1 89	2 78	1 4	0 2
1 740	3 15	3 41	**1985 0**	991 6	1 0 70	0 491	1 23	61354	7	1 543	3 0	3 3	3 4
2 753	0 64	2 9	**1986 0**	2 1961	0 3144	1 508	0 46	1 95997	0 4	0 796	2 25	0 7	2 0
0 65	1 64	43	**1987 0**	1 44797	1 3771	0 749	1 47	1 3 640	1	0 050	1 49	1 5	0 7
1 278	2 63	1 95	**1988 0**	0 67633	0 6645	1 766	0 70	65 83	3 4	855	0 7	4	9
3 290	1 13	2 46	**1989 0**	90468	9519	0 31	0 93	0 999 6	0 5	3 108	0 96	0 8	5
0 803	1	1 98	**1990 0**	0 13304	0 2393	1 47	0 16	0 34570	0 3	362	0 19	1 7	1 1
1 815	3 12	1 49	**1991 0**	2 91258	1 3020	0 488	1 17	3 24216	0 0	1 616	2 98	5	3 3
2 8 7	61	1 1	**1992 0**	2 14094	5894	1 505	0 40	2 58859	3 2	0 869	1	3 4	1 9
1 340	2 61	1 52	**1993 0**	2 36929	0 8769	1 746	0 63	2 9350	0 4	1 123	44	1 8	1 6
352	0 10	1 03	**1994 0**	1 59765	0 1643	0 987	1 64	2 28145	0 1	0 377	1 68	2 6	0
3 365	1 09	0 55	**1995 0**	0 82601	1 227	0 28	0 87	1 62789	3 4	3 181	0 91	0 0	4
0 877	09	0 06	***1996 0**	5437	0 5144	1 44	0 10	0 9743	3 1	2 435	0 15	0 9	1 0
2 890	0 58	0 58	**1997 0**	0 8 72	0 8 18	1 484	0 34	1 3 075	0	2 689	38	8	6
0 40	1 58	0 09	**1998 0**	3 06 6	0 089	0 7 6	1 34	0 66718	3 5	1 942	3 17	0 1	8
1 415	2 57	3 19	**1999 0**	9062	1 1519	1 743	0 57	0 01361	3 2	1 196	40	1 0	1 4
4 7	0 07	7	**2000 0**	1 51898	0 4393	0 984	1 58	91007	2 9	0 450	1 64	1 9	0 1
3 50	3 50	3 58	Periods	3 55118	1 7753	1 776	1 78	3 55003	3 5	3 551	3 55	3 5	3 6

T fi d tl T L git d d dt J p t O bit th t i f C l m m t b ppl m t d by th q i f T bl XII XXXII

Tables of Longitude, Latitude, and Radius Vector

X Motions of Mean Longitude and the Arguments for Days

1	2	3		5	6	7	8	9	10	11	12	13	14
Day	Mean Long.	A	B	C	D	E	F	G—J	K	L	M	N	O
	°	d	d	d	d	d	d	d	d	d	d	d	d
Jan. 1	101·37476	1·00000	1·00	1·00	1·000	1·0000	1·000	1·00	1·00	1·00	1·000	1·00	1·00
2	202·74952	2·00000	2·00	2·00	2·000	2·0000	2·000	2·00	0·23	2·00	2·000	2·00	2·00
3	304·12429	3·00000	3·00	3·00	3·000	3·0000	3·000	3·00	1·23	3·00	3·000	3·00	3·00
4	45·49905	4·00000	4·00	0·44	0·447	0·4486	0·449	4·00	0·46	0·50	0·500	0·50	0·42
5	146·87381	5·00000	0·49	1·44	1·447	1·4486	1·449	5·00	1·46	1·50	1·500	1·50	1·42
6	248·24857	6·00000	1·49	2·44	2·447	2·4486	2·449	6·00	0·69	2·50	2·500	2·50	2·42
7	349·62333	7·00000	2·49	3·44	3·447	3·4486	3·449	7·00	1·69	0·00	0·000	0·00	3·42
8	90·99809	0·94907	3·49	0·89	0·894	0·8972	0·898	8·00	0·92	1·00	1·000	1·00	0·83
9	192·37286	1·94907	4·49	1·89	1·894	1·8972	1·898	9·00	0·15	2·00	2·000	2·00	1·83
10	293·74762	2·94907	0·98	2·89	2·894	2·8972	2·898	10·00	1·15	3·00	3·000	3·00	2·83
11	35·12238	3·94907	1·98	0·33	0·342	0·3457	0·346	11·00	0·39	0·50	0·500	0·50	0·25
12	136·49714	4·94907	2·98	1·33	1·342	1·3457	1·346	12·00	1·39	1·50	1·500	1·50	1·25
13	237·87190	5·94907	3·98	2·33	2·342	2·3457	2·346	13·00	0·62	2·50	2·500	2·50	2·25
14	339·24666	6·94907	0·47	3·33	3·342	3·3457	3·346	14·00	1·62	0·01	0·000	0·00	3·25
15	80·62143	0·89815	1·47	0·77	0·789	0·7943	0·795	15·00	0·85	1·01	1·000	1·00	0·67
16	181·99619	1·89815	2·47	1·77	1·789	1·7943	1·795	16·00	0·08	2·01	2·000	2·00	1·67
17	283·37095	2·89815	3·47	2·77	2·789	2·7943	2·795	17·00	1·08	3·01	3·000	3·00	2·67
18	24·74571	3·89815	4·47	0·22	0·236	0·2429	0·244	18·00	0·31	0·51	0·501	0·50	0·08
19	126·12047	4·89815	0·96	1·22	1·236	1·2429	1·244	19·00	1·31	1·51	1·501	1·50	1·08
20	227·49523	5·89815	1·96	2·22	2·236	2·2429	2·244	20·00	0·54	2·51	2·501	2·50	2·08
21	328·87000	6·89815	2·96	3·22	3·236	3·2429	3·244	21·00	1·54	0·01	0·001	0·00	3·08
22	70·24476	0·84722	3·96	0·66	0·683	0·6915	0·693	22·00	0·77	1·01	1·001	1·00	0·50
23	171·61952	1·84722	0·44	1·66	1·683	1·6915	1·693	23·00	0·00	2·01	2·001	2·00	1·50
24	272·99428	2·84722	1·44	2·66	2·683	2·6915	2·693	24·00	1·00	3·01	3·001	3·00	2·50
25	14·36904	3·84722	2·44	0·10	0·130	0·1400	0·141	25·00	0·23	0·51	0·501	0·50	3·50
26	115·74380	4·84722	3·44	1·10	1·130	1·1400	1·141	26·00	1·23	1·51	1·501	1·50	0·92
27	217·11857	5·84722	4·44	2·10	2·130	2·1400	2·141	27·00	0·46	2·51	2·501	2·50	1·92
28	318·49333	6·84722	0·93	3·10	3·130	3·1400	3·141	28·00	1·46	0·01	0·001	0·00	2·92
29	59·86809	0·79629	1·93	0·55	0·577	0·5886	0·590	29·00	0·69	1·01	1·001	1·00	0·33
30	161·24285	1·79629	2·93	1·55	1·577	1·5886	1·590	30·00	1·69	2·01	2·001	2·00	1·33
31	262·61761	2·79629	3·93	2·55	2·577	2·5886	2·590	31·00	0·92	3·01	3·001	3·00	2·33
Feb. 1	3·99237	3·79629	0·42	3·55	0·025	0·0372	0·039	32·00	0·15	0·51	0·501	0·50	3·33
2	105·36714	4·79629	1·42	0·99	1·025	1·0372	1·039	33·00	1·15	1·51	1 501	1·50	0·75
3	206·74190	5·79629	2·42	1·99	2·025	2·0372	2·039	34·00	0·39	2·51	2·501	2·50	1·75
4	308·11666	6 79629	3·42	2·99	3·025	3·0372	3·039	35·00	1·39	0·01	0·001	0·00	2·75
	49·49142	0·74536	4·42	0·43	0·472	0·4858	0·488	36·00	0·62	1·01	1·001	1·00	0·17
6	150·86618	1·74536	0·91	1·43	1·472	1·4858	1·488	37·00	1·62	2·01	2·001	2·00	1·17
7	252·24094	2·74536	1·91	2·43	2·472	2·4858	2·488	38·00	0·85	3·01	3·001	3·00	2·17
8	353·61571	3·74536	2·91	3·43	3·472	3·4858	3·488	39·00	0·08	0·52	0·501	0·50	3·17
9	94·99047	4·74536	3·91	0·88	0·919	0·9343	0·936	40·00	1·08	1·52	1·501	1·50	0·58
10	196·36523	5·74536	0·40	1·88	1·919	1·9343	1·936	41·00	0·31	2·52	2·501	2·50	1·58
11	297·73999	6·74536	1·40	2·88	2·919	2·9343	2·936	42·00	1·31	0·02	0·001	0·00	2·58
12	39·11475	0·69444	2·40	0·32	0·366	0·3829	0·385	43·00	0·54	1·02	1·001	1·00	0·00
13	140·48951	1·69444	3·40	1·32	1·366	1·3829	1·385	44·00	1·54	2·02	2·001	2·00	1·00
14	241·86428	2·69444	4·40	2·32	2·366	2·3829	2·385	45·00	0·77	3·02	3·001	3·00	2·00
15	343·23904	3·69444	0·89	3·32	3·366	3·3829	3·385	46·00	0·00	0·52	0·501	0·50	3·00
16	84·61380	4·69444	1·89	0·76	0·813	0·8315	0·834	47·00	1·00	1·52	1·501	1·50	0·42
17	185·98856	5·69444	2·89	1·76	1·813	1·8315	1·834	48·00	0·23	2·52	2·501	2·50	1·42
18	287·36332	6·69444	3·89	2·76	2·813	2·8315	2·834	49·00	1·23	0·02	0·002	0·00	2·42
19	28·73808	0·64351	0·38	0·21	0·260	0·2801	0·283	50·00	0·46	1·02	1·002	1·00	3·42
20	130·11285	1·64351	1·38	1·21	1·260	1·2801	1·283	51·00	1·46	2·02	2·002	2·00	0·84
21	231·48761	2·64351	2·38	2·21	2·260	2·2801	2·283	52·00	0·70	3·02	3·002	3·00	1·84
22	332·86237	3·64351	3·38	3·21	3·260	3·2801	3·283	53·00	1·70	0·52	0·502	0·50	2·84

In Leap Year diminish the date in Columns 1, 15, by 1 day after Feb. 28.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

X Motions of Mean Longitude and the Arguments for Days

5	6	7	8	9				3	4	5	6
Day	P	Q	R	S	T	U	V	W	X	Y	Z
				d				d	d		d
Jan 1	0 03	1 000	1 0000	1 000	1 00	1 0000	1 0	1 00	1 00	1 0	1 0
2	0 5	2 00	0 47	2 4	0 2	000	0	0	00	2 0	2 0
3	0 008	3 0000	1 2 47	1 4	1	3 00 0	3 0	3 00	3 00	3 0	3 0
4	0 011	0 4488	4494	0 449	0 45	0 44997	0 5	0 449	45	0 5	0 4
5	0 014	1 4488	1 4494	1 449	1 45	1 44997	1 5	1 449	1 45	1 5	1 4
6	0 016	4488	0 6741	0 673	0 67	44997	2 5	2 449	45	2 5	2 4
7	19	3 4488	1 6741	1 673	1 67	3 44997	3 5	3 449	3 45	0 0	3 4
8	0 0	89764	0 8988	0 898	0 90	0 89993	0 9	0 898	0 9	1 0	0 9
9	0 5	1 89764	0 1 35	12	0 1	1 89993	1 9	1 898	1 90	2 0	1 9
10	0 027	2 89764	1 1 35	1 12	1 1	2 89993	2 9	2 898	90	3 0	9
11	030	34646	0 348	0 347	0 35	0 34990	0 4	347	0 35	5	0 3
12	0 033	1 34646	1 3482	1 347	1 35	1 34990	1 4	1 347	1 35	1 5	1 3
13	36	2 34646	57 9	571	57	2 3499	4	2 347	35	5	2 3
14	0 038	3 34646	1 57 9	1 571	1 57	3 34990	3 4	3 347	3 35	0 0	3 3
15	0 041	795 8	0 7976	0 796	0 8	0 7998(	0 8	0 796	0 80	1 0	0 8
16	0 044	1 79528	0 02 3	0 0 0	0 02	1 79986	1 8	1 796	1 80	0	1 8
17	47	79528	1 02 3	1 020	1 0	79986	8	2 796	2 80	3 0	2 8
18	0 049	0 24409	0 47	0 45	0 4	0 24983	0 3	0 245	0 24	0 5	0 2
19	0 052	1 4409	1 470	1 245	1 24	1 4983	1 3	1 245	1 24	1 5	1 2
20	0 055	2 4409	0 4717	0 469	0 47	4983	2 3	2 245	2 24	2 5	2 2
21	0 058	3 4409	1 4717	1 469	1 47	3 24983	3 3	3 45	3 24	0	3 2
22	0 060	0 69 91	0 6964	0 694	69	0 69979	0 7	0 694	0 69	1 0	0 7
23	0 063	1 69291	1 6964	1 694	1 69	1 69979	1 7	1 694	1 69	0	1 7
24	066	2 69291	0 9210	0 918	0 9	2 69979	7	2 694	2 69	3 0	2 7
25	068	0 14173	0 1457	0 143	0 14	0 14976	0 2	0 143	0 14	0 5	0 1
26	0 071	1 14173	1 1457	1 143	1 14	1 14976	1 2	1 143	1 14	1 5	1 1
27	0 074	2 14173	0 37 4	0 367	0 37	14976	2	2 143	2 14	2 5	2 1
28	077	3 14173	1 3704	1 367	1 37	3 14976	3	3 143	3 14	0 0	3 1
29	0 079	0 59055	0 5951	59	0 59	0 59972	0 6	0 593	0 59	1 0	0 5
30	0 082	1 59055	1 5951	1 59	1 59	1 5997	1 6	1 593	1 59	0	1 5
31	0 085	2 59055	0 8198	0 816	0 8	2 59972	2 6	2 593	2 59	3 0	5
Feb 1	0 88	0 03937	0 0445	0 040	0 04	0 04969	0 1	0 042	0 04	0 5	0 0
2	0 090	1 3937	1 445	1 40	1 04	1 04969	1 1	1 042	1 04	1 5	1 0
3	0 093	2 03937	0 2692	0 65	0 26	04969	1	042	2 04	5	0
4	0 096	3 3937	1 692	1 265	1 26	3 04969	3 1	3 04	3 04	0 0	3 0
5	0 099	0 48819	4939	0 489	0 49	0 49965	0 5	0 491	0 49	1 0	0 4
6	0 101	1 48819	1 4939	1 489	1 49	1 49965	1 5	1 491	1 49	2 0	1 4
7	0 104	48819	7186	0 714	0 71	2 49965	2 5	2 491	2 49	3	2 4
8	107	3 48819	1 7186	1 714	1 71	3 49965	0	3 491	3 49	0 5	3 4
9	0 110	0 93701	0 9433	0 938	0 94	0 9496	1 0	0 940	0 94	1 5	0 9
10	0 11	1 93701	0 1680	0 163	0 16	1 94962	2 0	1 940	1 94	5	1 9
11	0 115	2 93701	1 168	1 163	1 16	94962	3 0	2 94	2 94	0 0	9
12	118	38583	39 7	0 387	0 39	0 39958	4	0 389	39	1 0	0 3
13	0 121	1 38583	1 39 7	1 387	1 39	1 39958	1 4	1 389	1 39	0	1 3
14	0 1 3	38583	0 6174	0 61	0 61	39958	2 4	2 389	39	3 0	3
15	1 6	3 38583	1 6174	1 61	1 61	3 39958	3 4	3 389	3 39	0 5	3 3
16	0 129	0 83465	0 8421	0 836	0 84	0 84955	0 9	0 838	84	1 5	0 8
17	0 13	1 83465	0 668	0 061	0 06	1 84955	1 9	1 838	1 84	2 5	1 8
18	0 134	2 83465	1 0668	1 061	1 06	2 84955	9	2 838	2 84	0 0	2 8
19	0 137	0 28347	0 915	0 285	0 8	0 2995	0 3	0 287	0 8	1 0	0 2
20	0 140	1 8347	1 2915	1 285	1 28	1 2995	1 3	1 287	1 28	2 0	1 2
21	0 142	2 28347	0 5162	0 510	0 51	2 9952	2 3	2 287	2 8	3 0	2
22	0 145	3 28347	1 5162	1 510	1 51	3 29952	3 3	3 287	3 28	0 5	3

I L pY dimi l th d te C l m 5 by d y ft F b 8

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Day	Mean Long.	A	B	C	D	E	F	G—J	K	L	M	N	O
	°	d	d	d	d	d	d	d	d	d	d	d	d
Feb. 23	74.23713	4.64351	4.38	0.65	0.708	0.7287	0.731	54.00	0.92	1.52	1.502	1.50	0.25
24	175.61189	5.64351	0.87	1.65	1.708	1.7287	1.731	55.00	0.16	2.52	2.502	2.50	1.25
25	276.98665	6.64351	1.87	2.65	2.708	2.7287	2.731	56.00	1.16	0.02	0.002	0.00	2.25
26	18.36142	0.59258	2.87	0.09	0.155	0.1772	0.180	57.00	0.39	1.02	1.002	1.00	3.25
27	119.73618	1.59258	3.87	1.09	1.155	1.1772	1.180	58.00	1.39	2.02	2.002	2.00	0.67
28	221.11094	2.59258	0.36	2.09	2.155	2.1772	2.180	59.00	0.62	3.02	3.002	3.00	1.67
Mar. 1	322.48570	3.59258	1.36	3.09	3.155	3.1772	3.180	60.00	1.62	0.53	0.502	0.50	2.67
2	63.86046	4.59258	2.36	0.54	0.602	0.6258	0.629	61.00	0.85	1.53	1.502	1.50	0.09
3	165.23522	5.59258	3.36	1.54	1.602	1.6258	1.629	62.00	0.08	2.53	2.502	2.50	1.09
4	266.60999	6.59258	4.36	2.54	2.602	2.6258	2.629	63.00	1.08	0.03	0.002	0.00	2.09
5	7.98475	0.54166	0.84	3.54	0.049	0.0744	0.078	64.00	0.31	1.03	1.002	1.00	3.09
6	109.35951	1.54166	1.84	0.98	1.049	1.0744	1.078	65.00	1.31	2.03	2.002	2.00	0.50
7	210.73427	2.54166	2.84	1.98	2.049	2.0744	2.078	66.00	0.54	3.03	3.002	3.00	1.50
8	312.10903	3.54166	3.84	2.98	3.049	3.0744	3.078	67.00	1.54	0.53	0.502	0.50	2.50
9	53.48379	4.54166	0.33	0.42	0.496	0.5230	0.526	68.00	0.77	1.53	1.502	1.50	3.50
10	154.85856	5.54166	1.33	1.42	1.496	1.5230	1.526	69.00	0.00	2.53	2.502	2.50	0.92
11	256.23332	6.54166	2.33	2.42	2.496	2.5230	2.526	70.00	1.00	0.03	0.002	0.00	1.92
12	357.60808	0.49073	3.33	3.42	3.496	3.5230	3.526	71.00	0.23	1.03	1.002	1.00	2.92
13	98.98284	1.49073	4.33	0.87	0.943	0.9715	0.975	72.00	1.23	2.03	2.002	2.00	0.34
14	200.35760	2.49073	0.82	1.87	1.943	1.9715	1.975	73.00	0.46	3.03	3.002	3.00	1.34
15	301.73236	3.49073	1.82	2.87	2.943	2.9715	2.975	74.00	1.46	0.53	0.503	0.50	2.34
16	43.10713	4.49073	2.82	0.31	0.391	0.4201	0.424	75.00	0.69	1.53	1.503	1.50	3.34
17	144.48189	5.49073	3.82	1.31	1.391	1.4201	1.424	76.00	1.69	2.53	2.503	2.50	0.75
18	245.85665	6.49073	0.31	2.31	2.391	2.4201	2.424	77.00	0.92	0.03	0.003	0.00	1.75
19	347.23141	0.43980	1.31	3.31	3.391	3.4201	3.424	78.00	0.16	1.03	1.003	1.00	2.75
20	88.60617	1.43980	2.31	0.75	0.838	0.8687	0.873	79.00	1.16	2.03	2.003	2.00	0.17
21	189.98093	2.43980	3.31	1.75	1.838	1.8687	1.873	80.00	0.39	3.03	3.003	3.00	1.17
22	291.35570	3.43980	4.31	2.75	2.838	2.8687	2.873	81.00	1.39	0.53	0.503	0.50	2.17
23	32.73046	4.43980	0.80	0.20	0.285	0.3173	0.321	82.00	0.62	1.53	1.503	1.50	3.17
24	134.10522	5.43980	1.80	1.20	1.285	1.3173	1.321	83.00	1.62	2.53	2.503	2.50	0.59
25	235.47998	6.43980	2.80	2.20	2.285	2.3173	2.321	84.00	0.85	0.04	0.003	0.00	1.59
26	336.85474	0.38887	3.80	3.20	3.285	3.3173	3.321	85.00	0.08	1.04	1.003	1.00	2.59
27	78.22950	1.38887	0.29	0.64	0.732	0.7658	0.770	86.00	1.08	2.04	2.003	2.00	0.00
28	179.60427	2.38887	1.29	1.64	1.732	1.7658	1.770	87.00	0.31	3.04	3.003	3.00	1.00
29	280.97903	3.38887	2.29	2.64	2.732	2.7658	2.770	88.00	1.31	0.54	0.503	0.50	2.00
30	22.35379	4.38887	3.29	0.08	0.179	0.2144	0.219	89.00	0.54	1.54	1.503	1.50	3.00
31	123.72855	5.38887	4.29	1.08	1.179	1.2144	1.219	90.00	1.54	2.54	2.503	2.50	0.42
April 1	225.10331	6.38887	0.78	2.08	2.179	2.2144	2.219	91.00	0.77	0.04	0.003	0.00	1.42
2	326.47807	0.33795	1.78	3.08	3.179	3.2144	3.219	92.00	0.00	1.04	1.003	1.00	2.42
3	67.85284	1.33795	2.78	0.53	0.626	0.6630	0.668	93.00	1.00	2.04	2.003	2.00	3.42
4	169.22760	2.33795	3.78	1.53	1.626	1.6630	1.668	94.00	0.23	3.04	3.003	3.00	0.84
5	270.60236	3.33795	0.27	2.53	2.626	2.6630	2.668	95.00	1.23	0.54	0.503	0.50	1.84
6	11.97712	4.33795	1.27	3.53	0.074	0.1116	0.116	96.00	0.46	1.54	1.503	1.50	2.84
7	113.35188	5.33795	2.27	0.97	1.074	1.1116	1.116	97.00	1.46	2.54	2.503	2.50	0.25
8	214.72664	6.33795	3.27	1.97	2.074	2.1116	2.116	98.00	0.69	0.04	0.003	0.00	1.25
9	316.10141	0.28702	4.27	2.97	3.074	3.1116	3.116	99.00	1.69	1.04	1.003	1.00	2.25
10	57.47617	1.28702	0.76	0.41	0.521	0.5601	0.565	100.00	0.93	2.04	2.003	2.00	3.25
11	158.85093	2.28702	1.76	1.41	1.521	1.5601	1.565	101.00	0.16	3.04	3.003	3.00	0.67
12	260.22569	3.28702	2.76	2.41	2.521	2.5601	2.565	102.00	1.16	0.54	0.503	0.50	1.67
13	1.60045	4.28702	3.76	3.41	3.521	0.0087	0.014	103.00	0.39	1.54	1.503	1.50	2.67
14	102.97521	5.28702	0.25	0.86	0.968	1.0087	1.014	104.00	1.39	2.54	2.503	2.50	0.09
15	204.34998	6.28702	1.25	1.86	1.968	2.0087	2.014	105.00	0.62	0.04	0.004	0.00	1.09
16	305.72474	0.23609	2.25	2.86	2.968	3.0087	3.014	106.00	1.62	1.04	1.004	1.00	2.09

In Leap Year diminish the date in Columns 1, 15, by 1 day after Feb. 28.

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

5	6	7	8	9				3	4	5	6
Day	P	Q	R	S	T	U	V	W	X	Y	Z
							d			d	d
Feb 23	0 148	0 73228	0 7409	0 734	0 73	0 74948	0 8	0 736	73	1 5	0 6
24	0 151	1 73 8	1 7409	1 734	1 73	1 74948	1 8	1 736	1 73	5	1 6
25	0 153	732 8	0 9656	0 959	96	74948	8	736	2 73	0 0	2 6
26	0 156	0 1811	0 1903	0 183	0 18	0 19945	0 3	185	0 18	1 0	0 1
27	0 159	1 18110	1 19 3	1 183	1 18	1 19945	1 3	1 185	1 18	2 0	1 1
28	16	181	0 4150	0 408	41	19945	2 3	2 185	18	3 0	2 1
Mar 1	0 164	3 1811	1 4150	1 408	1 41	3 19945	3 3	3 185	3 18	0 5	3 1
2	0 167	0 6 992	6397	0 632	63	0 64941	7	0 634	0 63	1 5	0 5
3	0 170	1 6 99	1 6397	1 63	1 63	1 64941	1 7	1 634	1 63	5	1 5
4	173	6 992	0 8644	0 856	0 85	2 64941	7	2 634	63	0 0	2 5
5	0 175	07874	0 0891	0 081	8	0 09938	0	0 083	0 08	1 0	0 0
6	0 178	1 07874	1 891	1 081	1 8	1 09938	1 2	1 083	1 08	2 0	1 0
7	0 181	07874	3138	3 5	0 30	09938	2	2 083	2 08	3 0	0
8	184	3 7874	1 3138	1 305	1 3	3 09938	3 2	3 083	3 08	0 5	3 0
9	186	52756	0 5385	0 53	0 53	54934	6	0 532	0 53	1 5	0 4
10	18)	1 52756	1 5385	1 53	1 53	1 54934	1 6	1 53	1 53	2 5	1 4
11	0 19	5 756	0 7631	0 754	0 75	2 54934	6	2 53	2 53	0 0	2 4
12	0 195	3 52756	1 7631	1 754	1 75	3 54934	0 1	3 53	3 53	1 0	3 4
13	197	0 97638	0 9878	0 979	0 98	0 99931	1 1	0 981	0 98	2 0	0 9
14	0 00	1 97638	0 125	0 203	0 20	1 99931	2 1	1 981	1 98	3 0	1 9
15	0 03	2 97638	1 1 5	1 03	1 20	99931	3 1	981	2 98	5	9
16	0 5	0 425 0	0 437	4 8	0 43	0 44927	5	0 430	0 43	1 5	0 3
17	8	1 4 5 0	1 4372	1 4 8	1 43	1 44927	1 5	1 430	1 43	2 5	1 3
18	0 11	425	0 6619	0 652	0 65	2 449 7	2 5	430	43	0 0	2 3
19	0 214	3 425 0	1 6619	1 652	1 65	3 449 7	0 0	3 430	3 43	1 0	3 3
20	16	0 8740	8866	877	87	0 899 4	1 0	0 879	0 88	2 0	0 7
21	19	1 87402	0 1113	0 101	0 1	1 89924	0	1 879	1 88	3 0	1 7
22	0	2 874	1 1113	1 1 1	1 10	899 4	3 0	2 879	2 88	0 5	2 7
23	0 5	0 32 84	0 3360	0 3 6	0 3	0 34920	0 4	0 3 8	0 32	1 5	0 2
24	0 7	1 32284	1 3360	1 3 6	1 3	1 349	1 4	1 3 8	1 32	2 5	1 2
25	0 30	2 3 284	0 56 7	0 550	0 55	34920	4	2 328	2 3	0 0	2
26	0 33	3 3 284	1 56 7	1 55	1 55	3 34920	3 4	3 328	3 32	1 0	3
27	0 36	0 77166	0 7854	0 775	0 77	0 79917	9	0 778	0 77	0	0 6
28	0 38	1 77166	0 101	1 775	0 00	1 79917	1 9	1 778	1 77	3 0	1 6
29	241	2 77166	1 0101	0 999	1 00	2 79917	2 9	778	2 77	0 5	2 6
30	44	2 47	0 348	0 2 4	0 2	0 24913	0 3	0 2 7	0 22	1 5	0 1
31	47	1 2 047	1 2348	1 2 4	1	1 24913	1 3	1 2 7	1 22	2 5	1 1
April 1	249	2 22047	0 4595	0 448	0 45	24913	2 3	2 227	2 22	0	2 1
2	0 5	3 047	1 4595	1 448	1 45	3 24913	3 3	3 27	3 2	1 0	3 1
3	0 55	0 669 9	0 6842	0 67	0 67	0 69910	0 8	0 676	0 67	2 0	0 5
4	58	1 66929	1 684	1 67	1 67	1 69910	1 8	1 676	1 67	3 0	1 5
5	0 6	669 9	0 9089	0 897	0 89	2 69910	2 8	2 676	2 67	0 5	2 5
6	0 63	0 11811	0 1336	0 1 1	0 12	0 14907	0 2	0 125	0 12	1 5	0 0
7	0 66	1 11811	1 1336	1 1 1	1 12	1 14907	1 2	1 125	1 12	2 5	1 0
8	0 268	11811	3583	0 346	0 34	2 149 7	2 2	125	2 1	0 0	2 0
9	0 71	3 11811	1 3583	1 346	1 34	3 14907	3 2	3 125	3 12	1 0	3 0
10	0 274	56693	0 583	0 57	0 57	0 59903	0 7	0 574	0 57	2 0	0 4
11	77	1 56693	1 5830	1 570	1 57	1 59903	1 7	1 574	1 57	3 0	1 4
12	0 279	2 56693	0 8077	795	0 79	2 599 3	2 7	574	2 57	0 5	2 4
13	0 282	01575	0 03 4	0 019	0 0	0 4900	0 2	0 023	0 0	1 5	3 4
14	0 85	1 01575	1 03 4	1 019	1 0	1 0490	1 2	1 023	1 0	5	0 8
15	0 88	2 01575	0 2571	0 44	0 4	0490	2	2 023	2 02	0 0	1 8
16	290	3 01575	1 571	1 44	1 4	3 4900	3 2	3 023	3 02	1 0	2 8

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Day	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G—J**	**K**	**L**	**M**	**N**	**O**
	°	d	d	d	d	d	d	d	d	d	d	d	d
April 17	47·09950	1·23609	3·25	0·30	0·415	0·4573	0·463	107·00	0·85	2·04	2·004	2·00	3·09
18	148·47426	2·23609	4·25	1·30	1·415	1·4573	1·463	108·00	0·08	3·04	3·004	3·00	0·50
19	249·84902	3·23609	0·73	2·30	2·415	2·4573	2·463	109·00	1·08	0·55	0·504	0·50	1·50
20	351·22378	4·23609	1·73	3·30	3·415	3·4573	3·463	110·00	0·31	1·55	1·504	1·50	2·50
21	92·59855	5·23609	2·73	0·74	0·862	0·9059	0·911	111·00	1·31	2·55	2·504	2·50	3·50
22	193·97331	6·23609	3·73	1·74	1·862	1·9059	1·911	112·00	0·54	0·05	0·004	0·00	0·92
23	295·34807	0·18517	0·22	2·74	2·862	2·9059	2·911	113·00	1·54	1·05	1·004	1·00	1·92
24	36·72283	1·18517	1·22	0·18	0·309	0·3545	0·360	114·00	0·77	2·05	2·004	2·00	2·92
25	138·09759	2·18517	2·22	1·18	1·309	1·3545	1·360	115·00	0·00	3·05	3·004	3·00	0·34
26	239·47235	3·18517	3·22	2·18	2·309	2·3545	2·360	116·00	1·00	0·55	0·504	0·50	1·34
27	340·84712	4·18517	4·22	3·18	3·309	3·3545	3·360	117·00	0·23	1·55	1·504	1·50	2·34
28	82·22188	5·18517	0·71	0·63	0·757	0·8030	0·809	118·00	1·23	2·55	2·504	2·50	3·34
29	183·59664	6·18517	1·71	1·63	1·757	1·8030	1·809	119·00	0·46	0·05	0·004	0·00	0·75
30	284·97140	0·13424	2·71	2·63	2·757	2·8030	2·809	120·00	1·46	1·05	1·004	1·00	1·75
May 1	26·34616	1·13424	3·71	0·07	0·204	0·2516	0·258	121·00	0·70	2·05	2·004	2·00	2·75
2	127·72092	2·13424	0·20	1·07	1·204	1·2516	1·258	122·00	1·70	3·05	3·004	3·00	0·17
3	229·09569	3·13424	1·20	2·07	2·204	2·2516	2·258	123·00	0·93	0·55	0·504	0·50	1·17
4	330·47045	4·13424	2·20	3·07	3·204	3·2516	3·258	124·00	0·16	1·55	1·504	1·50	2·17
5	71·84521	5·13424	3·20	0·51	0·651	0·7002	0·706	125·00	1·16	2·55	2·504	2·50	3·17
6	173·21997	6·13424	4·20	1·51	1·651	1·7002	1·706	126·00	0·39	0·05	0·004	0·00	0·59
7	274·59473	0·08331	0·69	2·51	2·651	2·7002	2·706	127·00	1·39	1·05	1·004	1·00	1·59
8	15·96949	1·08331	1·69	3·51	0·098	0·1488	0·155	128·00	0·62	2·05	2·004	2·00	2·59
9	117·34426	2·08331	2·69	0·96	1·098	1·1488	1·155	129·00	1·62	3·05	3·004	3·00	0·01
10	218·71902	3·08331	3·69	1·96	2·098	2·1488	2·155	130·00	0·85	0·55	0·504	0·50	1·01
11	320·09378	4·08331	0·18	2·96	3·098	3·1488	3·155	131·00	0·08	1·55	1·504	1·50	2·01
12	61·46854	5·08331	1·18	0·40	0·545	0·5973	0·604	132·00	1·08	2·55	2·504	2·50	3·01
13	162·84330	6·08331	2·18	1·40	1·545	1·5973	1·604	133·00	0·31	0·06	0·005	0·00	0·42
14	264·21806	0·03238	3·18	2·40	2·545	2·5973	2·604	134·00	1·31	1·06	1·005	1·00	1·42
15	5·59283	1·03238	4·18	3·40	3·545	0·0459	0·053	135·00	0·54	2·06	2·005	2·00	2·42
16	106·96759	2·03238	0·67	0·84	0·992	1·0459	1·053	136·00	1·54	3·06	3·005	3·00	3·42
17	208·34235	3·03238	1·67	1·84	1·992	2·0459	2·053	137·00	0·77	0·56	0·505	0·50	0·84
18	309·71711	4·03238	2·67	2·84	2·992	3·0459	3·053	138·00	0·00	1·56	1·505	1·50	1·84
19	51·09187	5·03238	3·67	0·29	0·440	0·4945	0·501	139·00	1·00	2·56	2·505	2·50	2·84
20	152·46663	6·03238	0·16	1·29	1·440	1·4945	1·501	140·00	0·23	0·06	0·005	0·00	0·26
21	253·84140	7·03238	1·16	2·29	2·440	2·4945	2·501	141·00	1·23	1·06	1·005	1·00	1·26
22	355·21616	0·98146	2·16	3·29	3·440	3·4945	3·501	142·00	0·46	2·06	2·005	2·00	2·26
23	96·59092	1·98146	3·16	0·73	0·887	0·9431	0·950	143·00	1·46	3·06	3·005	3·00	3·26
24	197·96568	2·98146	4·16	1·73	1·887	1·9431	1·950	144·00	0·70	0·56	0·505	0·50	0·67
25	299·34044	3·98146	0·65	2·73	2·887	2·9431	2·950	145·00	1·70	1·56	1·505	1·50	1·67
26	40·71520	4·98146	1·65	0·17	0·334	0·3916	0·399	146·00	0·93	2·56	2·505	2·50	2·67
27	142·08997	5·98146	2·65	1·17	1·334	1·3916	1·399	147·00	0·16	0·06	0·005	0·00	0·09
28	243·46473	6·98146	3·65	2·17	2·334	2·3916	2·399	148·00	1·16	1·06	1·005	1·00	1·09
29	344·83949	0·93053	0·13	3·17	3·334	3·3916	3·399	149·00	0·39	2·06	2·005	2·00	2·09
30	86·21425	1·93053	1·13	0·62	0·781	0·8402	0·848	150·00	1·39	3·06	3·005	3·00	3·09
31	187·58901	2·93053	2·13	1·62	1·781	1·8402	1·848	151·00	0·62	0·56	0·505	0·50	0·51
June 1	288·96377	3·93053	3·13	2·62	2·781	2·8402	2·848	152·00	1·62	1·56	1·505	1·50	1·51
2	30·33854	4·93053	4·13	0·06	0·228	0·2888	0·296	153·00	0·85	2·56	2·505	2·50	2·51
3	131·71330	5·93053	0·62	1·06	1·228	1·2888	1·296	154·00	0·08	0·07	0·005	0·00	3·51
4	233·08806	6·93053	1·62	2·06	2·228	2·2888	2·296	155·00	1·08	1·07	1·005	1·00	0·92
5	334·46282	0·87960	2·62	3·06	3·228	3·2888	3·296	156·00	0·31	2·07	2·005	2·00	1·92
6	75·83758	1·87960	3·62	0·50	0·675	0·7374	0·745	157·00	1·31	3·07	3·005	3·00	2·92
7	177·21234	2·87960	0·11	1·50	1·675	1·7374	1·745	158·00	0·54	0·57	0·505	0·50	0·34

In Leap Year diminish the date in Columns 1, 15, by 1 day after Feb. 28.

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

5	6	7	8	9				3	4	5	6
Dy	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**
									d	d	d
Apr 1 17	0 293	0 46457	0 4818	0 468	0 47	49896	0 6	0 472	0 47	2 0	0 3
18	0 296	1 46457	1 4818	1 468	1 47	1 49896	1 6	1 47	1 47	3 0	1 3
19	0 299	2 46457	7065	693	0 69	49896	2 6	47	2 47	0 5	3
20	0 301	3 46457	1 7 65	1 693	1 69	3 49896	0 1	3 472	3 47	1 5	3 3
21	0 304	0 91339	0 931	0 917	0 91	0 94893	1 1	0 921	0 92	2 5	0 7
22	0 307	1 91339	0 1559	0 142	0 14	1 94893	1	1 9 1	1 9	0	1 7
23	0 310	2 91339	1 1559	1 142	1 14	2 94893	3 1	2 9 1	2 92	1 0	2 7
24	0 31	0 36 1	0 3806	0 366	0 36	0 39889	0 5	0 370	0 36	2	0 2
25	3 5	1 36 1	1 3806	1 366	1 36	1 39889	1 5	1 370	1 36	3	1 2
26	0 318	36221	0 605	591	0 59	2 39889	2 5	370	36	0 5	2
27	3 1	3 36221	1 6052	1 591	1 59	3 39889	0 0	3 370	3 36	1 5	3 2
28	3 3	0 81103	0 8 99	0 815	0 81	0 84886	1 0	0 819	81	2 5	0 6
29	0 3 6	1 81103	0 0546	0 040	0 4	1 84886	0	1 819	1 81	0	1 6
30	0 329	2 81103	1 0546	1 040	1 4	84886	3 0	2 819	2 81	1 0	2 6
May 1	0 332	0 25985	0 793	0 64	0 6	0 2988	0 4	0 68	0 26	2 0	0 1
2	0 334	1 25985	1 793	1 264	1 6	1 2988	1 4	1 268	1 26	3 0	1 1
3	0 337	2 25985	0 5040	0 488	0 49	2 2988	4	2 268	6	0 5	2 1
4	0 340	3 5985	1 5040	1 488	1 49	3 9882	3 4	3 268	3 6	1 5	3 1
5	0 34	0 7 866	0 7 87	0 713	0 71	0 74879	0 9	0 717	0 71	2 5	0 5
6	0 345	1 70866	1 7287	1 713	1 71	1 74879	1 9	1 717	1 71	0 0	1 5
7	0 348	70866	0 9534	0 937	0 93	2 74879	9	2 717	2 71	1 0	2 5
8	0 351	15748	0 1781	0 16	0 16	0 19875	0 3	0 166	0 16	2 0	3 5
9	0 353	1 15748	1 1781	1 162	1 16	1 19875	1 3	1 166	1 16	3 0	0 9
10	0 356	15748	0 40 8	0 386	0 38	2 19875	2 3	2 166	16	0 5	1 9
11	0 359	3 15748	1 4028	1 386	1 38	3 19875	3 3	3 166	3 16	1 5	9
12	0 36	0 60630	0 6275	0 611	61	0 64872	0 8	0 615	0 61	2 5	0 4
13	0 364	1 60630	1 6275	1 611	1 61	1 64872	1 8	1 615	1 61	0 0	1 4
14	0 367	60630	0 852	0 835	0 83	2 6487	8	2 615	61	1	2 4
15	370	0 05512	0 0769	0 060	0 06	09869	0 2	0 064	0 06	2 0	3 4
16	373	1 551	1 0769	1 060	1 6	1 09869	1	1 064	1 06	3 0	0 8
17	0 375	2 05512	0 3016	0 284	0 8	09869		064	2 06	0 5	1 8
18	0 378	3 05512	1 3016	1 84	1 28	3 09869	3 2	3 064	3 06	1 5	2 8
19	381	0 50394	0 5 63	0 509	51	0 54865	0 7	0 514	0 51	2 5	3
20	384	1 50394	1 5263	1 509	1 51	1 54865	1 7	1 514	1 51	0 0	1 3
21	0 386	2 50394	0 7510	0 733	0 73	2 54865	7	2 514	2 51	1 0	2 3
22	0 389	3 50394	1 7510	1 733	1 73	3 54865	0 1	3 514	3 51	0	3 3
23	39	95 76	0 9757	0 958	0 95	0 99862	1 1	0 963	0 96	3 0	0 7
24	0 395	1 95 76	0 004	0 182	0 18	1 9986	1	1 963	1 96	0 5	1 7
25	0 397	2 95 76	1 2004	1 182	1 18	2 9986	3 1	963	96	1 5	2 7
26	0 400	0 40158	0 4251	0 407	0 4	0 44858	0 6	0 41	0 40	2 5	0 2
27	0 403	1 40158	1 4251	1 407	1 40	1 44858	1 6	1 412	1 40	3 5	1 2
28	405	2 40158	0 6498	631	0 63	44858	2 6	2 412	2 40	0 9	2 2
29	0 4 8	3 40158	1 6498	1 631	1 63	3 44858	0 0	3 41	3 40	1 9	3 2
30	0 411	0 8504	0 8745	0 856	0 85	0 89855	1 0	0 861	0 85	2 9	0 6
31	414	1 85040	0992	0 080	0 08	1 89855	0	1 861	1 85	0 4	1 6
June 1	0 416	85040	1 0992	1 08	1 08	2 89855	3 0	2 861	85	1 4	6
2	0 419	0 99	0 3 39	304	0 3	0 34851	0 5	0 310	0 30	4	0 0
3	0 4	1 2992	1 3 39	1 304	1 30	1 34851	1 5	1 310	1 30	3 4	1 0
4	0 425	2 2992	0 5486	0 529	0 52	34851	5	310	30	0 9	2 0
5	0 427	3 29922	1 5486	1 529	1 5	3 34851	0	3 310	3 30	1 9	3
6	0 430	0 74804	0 7733	0 753	0 75	0 79848	1 0	0 759	0 75	9	0 5
7	0 433	1 74804	1 7733	1 753	1 75	1 79848	2 0	1 759	1 75	0 4	1 5

I L pY dml ihtl d t i Ol m 5 by d y ft F b 8

Tables of Longitude, Latitude, and Radius Vector

X *continued* Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Day	Mean Long.	A	B	C	D	E	F	G—J	K	L	M	N	O
	°	d	d	d	d	d	d	d	d	d	d	d	d
June 8	278·58711	3·87960	1·11	2·50	2·675	2·7374	2·745	159·00	1·55	1·57	1·505	1·50	1·34
9	19·96187	4·87960	2·11	3·50	0·123	0·1860	0·194	160·00	0·78	2·57	2·505	2·50	2·34
10	121·33663	5·87960	3·11	0·95	1·123	1·1860	1·194	161·00	0·01	0·07	0·005	0·00	3·34
11	222·71139	6·87960	4·11	1·95	2·123	2·1860	2·194	162·00	1·01	1·07	1·005	1·00	0·76
12	324·08615	0·82868	0·60	2·95	3·123	3·1860	3·194	163·00	0·24	2·07	2·005	2·00	1·76
13	65·46091	1·82868	1·60	0·39	0·570	0·6345	0·643	164·00	1·24	3·07	3·005	3·00	2·76
14	166·83568	2·82868	2·60	1·39	1·570	1·6345	1·643	165·00	0·47	0·57	0·506	0·50	0·17
15	268·21044	3·82868	3·60	2·39	2·570	2·6345	2·643	166·00	1·47	1·57	1·506	1·50	1·17
16	9·58520	4·82868	0·09	3·39	0·017	0·0831	0·091	167·00	0·70	2·57	2·506	2·50	2·17
17	110·95996	5·82868	1·09	0·83	1·017	1·0831	1·091	168·00	1·70	0·07	0·006	0·00	3·17
18	212·33472	6·82868	2·09	1·83	2·017	2·0831	2·091	169·00	0·93	1·07	1·006	1·00	0·59
19	313·70948	0·77775	3·09	2·83	3·017	3·0831	3·091	170·00	0·16	2·07	2·006	2·00	1·59
20	55·08425	1·77775	4·09	0·28	0·464	0·5317	0·540	171·00	1·16	3·07	3·006	3·00	2·59
21	156·45901	2·77775	0·58	1·28	1·464	1·5317	1·540	172·00	0·39	0·57	0·506	0·50	0·01
22	257·83377	3·77775	1·58	2·28	2·464	2·5317	2·540	173·00	1·39	1·57	1·506	1·50	1·01
23	359·20853	4·77775	2·58	3·28	3·464	3·5317	3·540	174·00	0·62	2·57	2·506	2·50	2·01
24	100·58329	5·77775	3·58	0·72	0·911	0·9803	0·989	175·00	1·62	0·07	0·006	0·00	3·01
25	201·95805	6·77775	0·07	1·72	1·911	1·9803	1·989	176·00	0·85	1·07	1·006	1·00	0·42
26	303·33282	0·72682	1·07	2·72	2·911	2·9803	2·989	177·00	0·09	2·07	2·006	2·00	1·42
27	44·70758	1·72682	2·07	0·16	0·358	0·4288	0·438	178·00	1·09	3·07	3·006	3·00	2·42
28	146·08234	2·72682	3·07	1·16	1·358	1·4288	1·438	179·00	0·32	0·58	0·506	0·50	3·42
29	247·45710	3·72682	4·07	2·16	2·358	2·4288	2·438	180·00	1·32	1·58	1·506	1·50	0·84
30	348·83186	4·72682	0·56	3·16	3·358	3·4288	3·438	181·00	0·55	2·58	2·506	2·50	1·84
July 1	90·20662	5·72682	1·56	0·61	0·806	0·8774	0·886	182·00	1·55	0·08	0·006	0·00	2·84
2	191·58139	6·72682	2·56	1·61	1·806	1·8774	1·886	183·00	0·78	1·08	1·006	1·00	0·26
3	292·95615	0·67589	3·56	2·61	2·806	2·8774	2·886	184·00	0·01	2·08	2·006	2·00	1·26
4	34·33091	1·67589	0·05	0·05	0·253	0·3260	0·335	185·00	1·01	3·08	3·006	3·00	2·26
5	135·70567	2·67589	1·05	1·05	1·253	1·3260	1·335	186·00	0·24	0·58	0·506	0·50	3·26
6	237·08043	3·67589	2·05	2·05	2·253	2·3260	2·335	187·00	1·24	1·58	1·506	1·50	0·67
7	338·45519	4·67589	3·05	3·05	3·253	3·3260	3·335	188·00	0·47	2·58	2·506	2·50	1·67
8	79·82996	5·67589	4·05	0·49	0·700	0·7746	0·784	189·00	1·47	0·08	0·006	0·00	2·67
9	181·20472	6·67589	0·53	1·49	1·700	1·7746	1·784	190·00	0·70	1·08	1·006	1·00	0·09
10	282·57948	0·62497	1·53	2·49	2·700	2·7746	2·784	191·00	1·70	2·08	2·006	2·00	1·09
11	23·95424	1·62497	2·53	3·49	0·147	0·2231	0·233	192·00	0·93	3·08	3·006	3·00	2·09
12	125·32900	2·62497	3·53	0·94	1·147	1·2231	1·233	193·00	0·16	0·58	0·507	0·50	3·09
13	226·70376	3·62497	0·02	1·94	2·147	2·2231	2·233	194·00	1·16	1·58	1·507	1·50	0·51
14	328·07853	4·62497	1·02	2·94	3·147	3·2231	3·233	195·00	0·39	2·58	2·507	2·50	1·51
15	69·45329	5·62497	2·02	0·38	0·594	0·6717	0·681	196·00	1·39	0·08	0·007	0·00	2·51
16	170·82805	6·62497	3·02	1·38	1·594	1·6717	1·681	197·00	0·62	1·08	1·007	1·00	3·51
17	272·20281	0·57404	4·02	2·38	2·594	2·6717	2·681	198·00	1·62	2·08	2·007	2·00	0·92
18	13·57757	1·57404	0·51	3·38	0·041	0·1203	0·130	199·00	0·86	3·08	3·007	3·00	1·92
19	114·95233	2·57404	1·51	0·82	1·041	1·1203	1·130	200·00	0·09	0·58	0·507	0·50	2·92
20	216·32710	3·57404	2·51	1·82	2·041	2·1203	2·130	201·00	1·09	1·58	1·507	1·50	0·34
21	317·70186	4·57404	3·51	2·82	3·041	3·1203	3·130	202·00	0·32	2·58	2·507	2·50	1·34
22	59·07662	5·57404	0·00	0·27	0·489	0·5689	0·579	203·00	1·32	0·09	0·007	0·00	2·34
23	160·45138	6·57404	1·00	1·27	1·489	1·5689	1·579	204·00	0·55	1·09	1·007	1·00	3·34
24	261·82614	0·52311	2·00	2·27	2·489	2·5689	2·579	205·00	1·55	2·09	2·007	2·00	0·76
25	3·20090	1·52311	3·00	3·27	3·489	0·0175	0·028	206·00	0·78	3·09	3·007	3·00	1·76
26	104·57567	2·52311	4·00	0·71	0·936	1·0175	1·028	207·00	0·01	0·59	0·507	0·50	2·76
27	205·95043	3·52311	0·49	1·71	1·936	2·0175	2·028	208·00	1·01	1·59	1·507	1·50	0·17
28	307·32519	4·52311	1·49	2·71	2·936	3·0175	3·028	209·00	0·24	2·59	2·507	2·50	1·17
29	48·69995	5·52311	2·49	0·15	0·383	0·4660	0·476	210·00	1·24	0·09	0·007	0·00	2·17

In Leap Year diminish the date in Columns 1, 15, by 1 day after Feb. 28.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

5	6	7	8	9				3	4	5	6
D y	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**
		d		d							
June 8	0 436	74804	0 9980	0 978	0 97	79848	3	759	75	1 4	2 5
9	0 438	19685	27		0 20	4844	4	0 08	0 0	2 4	3 5
10	0 441	19685	1 27	1 2	1 2	1 4844	1 4	1 08	1 0	3 4	0 9
11	444	19685	4473	4 7	0 42	2 24844	2 4	2 08		0 9	1 9
12	0 447	3 19685	1 4473	1 4 7	1 4	3 4844	3 4	3 08	3	1 9	9
13	0 449	64567	6720	651	0 65	0 69841	0 9	0 657	0 65	9	0 4
14	45	1 64567	1 67	1 65	1 65	1 69841	1 9	1 657	1 65	0 4	1 4
15	455	64567	0 8967	0 876	0 87	69841	9	657	2 65	1 4	4
16	0 458	0 9449	1 14	0 10	0 1	14837	0 3	0 106	10	2 4	3 4
17	0 460	1 9449	1 1 14	1 1 0	1 10	1 14837	1 3	1 106	1 10	3 4	0 8
18	463	2 09449	3461	0 3 5	32	14837	3	2 106	2 10	0 9	1 8
19	0 466	3 9449	1 3461	1 3 5	1 32	3 14837	3 3	3 106	3 10	1 9	2 8
20	0 468	54331	0 57 8	0 549	0 54	0 59834	0 8	0 555	55	9	0 3
21	0 471	1 54331	57 8	1 549	1 54	1 59834	1 8	1 555	1 55	0 4	1 3
22	0 474	54331	0 7955	0 774	0 77	2 59834	2 8	555	55	1 4	3
23	477	3 54331	0	1 774	1 77	0 04830	0	0 0 4	0 0	2 4	3 3
24	0 479	0 99 13	1 020	0 998	0 99	1 0483	1 2	1 004	1 00	3 4	0 7
25	0 482	1 99 13	0 449	0 23	0	2 04830	2	2 004	2 00	0 9	1 7
26	0 485	2 99 13	1 449	1 2 3	1 2	3 0483	3 2	3 004	3 0	1 9	2 7
27	488	0 44095	0 4696	0 447	44	0 49827	0 7	0 453	0 44	9	0 1
28	0 490	1 44095	1 4696	1 447	1 44	1 498 7	1 7	1 453	1 44	0 4	1 1
29	0 493	2 44095	0 6943	0 672	0 67	2 498 7	2 7	2 453	44	1 4	2 1
30	0 496	3 44 95	1 6943	1 67	1 67	3 498 7	1	3 453	3 44	2 4	3 1
July 1	499	0 88977	9190	0 896	0 89	0 948 4	1 1	0 90	89	3 4	0 6
2	0 501	1 88977	1437	1 1	0 1	1 948 4	1	1 90	1 89	0 9	1 6
3	0 504	2 88977	1 1437	1 1	1 1	948 4	3 1	9	89	1 9	6
4	0 5 7	0 33859	0 3684	0 345	0 34	0 3982	0 6	0 351	0 34	9	0 0
5	0 510	1 33859	1 3684	1 345	1 34	1 398 0	1 6	1 351	1 34	0 4	1 0
6	0 512	2 33859	5931	0 569	0 56	398 0	2 6	2 351	34	1 4	0
7	0 515	3 33859	1 5931	1 569	1 56	3 39820	0 0	3 351	3 34	2 4	3 0
8	0 518	0 78741	0 8178	0 794	0 79	0 84817	1 0	0 800	0 79	3 4	0 5
9	0 521	1 78741	0 04 5	0 018	0 01	1 84817	2 0	1 800	1 79	0 9	1 5
10	0 523	78741	1 0425	1 018	1 1	84817	3 0	2 800	2 79	1 9	5
11	0 526	0 3623	0 672	0 43	0 4	9813	0 5	0 249	0 4	9	3 5
12	5 9	1 23623	1 67	1 43	1 4	1 9813	1 5	1 249	1 24	0 4	0 9
13	53	36 3	0 4919	0 467	0 46	2 29813	2 5	2 249	4	1 4	1 9
14	0 534	3 3623	1 49 9	1 467	1 46	3 29813	3 5	3 249	3 4	2 4	2 9
15	0 537	685 4	0 7166	0 69	0 69	0 74810	0 9	0 699	0 69	3 4	0 4
16	0 540	1 68504	1 7166	1 692	1 69	1 7481	1 9	1 699	1 69	0 9	1 4
17	0 54	2 68504	0 9413	0 916	0 91	2 74810	2 9	2 699	2 69	1 9	2 4
18	0 545	0 13386	0 1660	141	0 14	0 19806	0 4	0 148	0 14	2 9	3 4
19	0 548	1 13386	1 1660	1 141	1 14	1 19806	1 4	1 148	1 14	0 4	0 8
20	0 551	13386	0 39 7	0 365	0 36	19806	2 4	2 148	14	1 4	1 8
21	0 553	3 13386	1 39 7	1 365	1 36	3 19806	3 4	3 148	3 14	4	2 8
22	0 556	0 58 68	0 6154	0 59	0 58	0 64803	0 8	0 597	0 59	3 4	3
23	559	1 58268	1 6154	1 590	1 58	1 64803	1 8	1 597	1 59	0 9	1 3
24	56	58 68	0 8401	0 814	0 81	64803	8	597	2 59	1 9	3
25	564	0315	0 648	39	0 3	09799	0 3	0 046	0 4	2 9	3 3
26	0 567	1 03150	1 0648	1 039	1 03	1 09799	1 3	1 46	1 4	4	0 7
27	0 570	2 3150	0 894	263	6	9799	3	2 046	04	1 4	1 7
28	0 573	3 03150	1 894	1 263	1 6	3 09799	3 3	3 046	3 04	2 4	2 7
29	0 575	0 48032	0 5141	0 488	0 48	0 54796	0 8	0 495	0 48	3 4	0 1

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Day	Mean Long.	A	B	C	D	E	F	G—J	K	L	M	N	O
	°	d	d	d	d	d	d	d	d	d	d	d	d
July 30	150·07471	6·52311	3·49	1·15	1·383	1·4660	1·476	211·00	0·47	1·09	1·007	1·00	3·17
31	251·44947	0·47219	4·49	2·15	2·383	2·4660	2·476	212·00	1·47	2·09	2·007	2·00	0·59
Aug. 1	352·82424	1·47219	0·98	3·15	3·383	3·4660	3·476	213·00	0·70	3·09	3·007	3·00	1·59
2	94·19900	2·47219	1·98	0·60	0·830	0·9146	0·925	214·00	1·70	0·59	0·507	0·50	2·59
3	195·57376	3·47219	2·98	1·60	1·830	1·9146	1·925	215·00	0·93	1·59	1·507	1·50	0·01
4	296·94852	4·47219	3·98	2·60	2·830	2·9146	2·925	216·00	0·16	2·59	2·507	2·50	1·01
5	38·32328	5·47219	0·47	0·04	0·277	0·3632	0·374	217·00	1·16	0·09	0·007	0·00	2·01
6	139·69804	6·47219	1·47	1·04	1·277	1·3632	1·374	218·00	0·39	1·09	1·007	1·00	3·01
7	241·07281	0·42126	2·47	2·04	2·277	2·3632	2·374	219·00	1·39	2·09	2·007	2·00	0·43
8	342·44757	1·42126	3·47	3·04	3·277	3·3632	3·374	220·00	0·62	3·09	3·007	3·00	1·43
9	83·82233	2·42126	4·47	0·48	0·724	0·8118	0·823	221·00	1·62	0·59	0·508	0·50	2·43
10	185·19709	3·42126	0·96	1·48	1·724	1·8118	1·823	222·00	0·85	1·59	1·508	1·50	3·43
11	286·57185	4·42126	1·96	2·48	2·724	2·8118	2·823	223·00	0·08	2·59	2·508	2·50	0·84
12	27·94661	5·42126	2·96	3·48	0·172	0·2603	0·271	224·00	1·08	0·10	0·008	0·00	1·84
13	129·32138	6·42126	3·96	0·93	1·172	1·2603	1·271	225·00	0·31	1·10	1·008	1·00	2·84
14	230·69614	0·37033	0·45	1·93	2·172	2·2603	2·271	226·00	1·31	2·10	2·008	2·00	0·26
15	332·07090	1·37033	1·45	2·93	3·172	3·2603	3·271	227·00	0·54	3·10	3·008	3·00	1·26
16	73·44566	2·37033	2·45	0·37	0·619	0·7089	0·720	228·00	1·54	0·60	0·508	0·50	2·26
17	174·82042	3·37033	3·45	1·37	1·619	1·7089	1·720	229·00	0·77	1·60	1·508	1·50	3·26
18	276·19518	4·37033	4·45	2·37	2·619	2·7089	2·720	230·00	0·00	2·60	2·508	2·50	0·68
19	17·56995	5·37033	0·94	3·37	0·066	0·1575	0·169	231·00	1·00	0·10	0·008	0·00	1·68
20	118·94471	6·37033	1·94	0·81	1·066	1·1575	1·169	232·00	0·24	1·10	1·008	1·00	2·68
21	220·31947	0·31940	2·94	1·81	2·066	2·1575	2·169	233·00	1·24	2·10	2·008	2·00	0·09
22	321·69423	1·31940	3·94	2·81	3·066	3·1575	3·169	234·00	0·47	3·10	3·008	3·00	1·09
23	63·06899	2·31940	0·42	0·26	0·513	0·6061	0·618	235·00	1·47	0·60	0·508	0·50	2·09
24	164·44375	3·31940	1·42	1·26	1·513	1·6061	1·618	236·00	0·70	1·60	1·508	1·50	3·09
25	265·81852	4·31940	2·42	2·26	2·513	2·6061	2·618	237·00	1·70	2·60	2·508	2·50	0·51
26	7·19328	5·31940	3·42	3·26	3·513	0·0546	0·067	238·00	0·93	0·10	0·008	0·00	1·51
27	108·56804	6·31940	4·42	0·70	0·960	1·0546	1·067	239·00	0·16	1·10	1·008	1·00	2·51
28	209·94280	0·26848	0·91	1·70	1·960	2·0546	2·067	240·00	1·16	2·10	2·008	2·00	3·51
29	311·31756	1·26848	1·91	2·70	2·960	3·0546	3·067	241·00	0·39	3·10	3·008	3·00	0·93
30	52·69232	2·26848	2·91	0·14	0·407	0·5032	0·515	242·00	1·39	0·60	0·508	0·50	1·93
31	154·06709	3·26848	3·91	1·14	1·407	1·5032	1·515	243·00	0·62	1·60	1·508	1·50	2·93
Sept. 1	255·44185	4·26848	0·40	2·14	2·407	2·5032	2·515	244·00	1·62	2·60	2·508	2·50	0·34
2	356·81661	5·26848	1·40	3·14	3·407	3·5032	3·515	245·00	0·85	0·10	0·008	0·00	1·34
3	98·19137	6·26848	2·40	0·59	0·855	0·9518	0·964	246·00	0·08	1·10	1·008	1·00	2·34
4	199·56613	0·21755	3·40	1·59	1·855	1·9518	1·964	247·00	1·08	2·10	2·008	2·00	3·34
5	300·94089	1·21755	4·40	2·59	2·855	2·9518	2·964	248·00	0·31	3·10	3·008	3·00	0·76
6	42·31566	2·21755	0·89	0·03	0·302	0·4004	0·413	249·00	1·31	0·61	0·508	0·50	1·76
7	143·69042	3·21755	1·89	1·03	1·302	1·4004	1·413	250·00	0·54	1·61	1·508	1·50	2·76
8	245·06518	4·21755	2·89	2·03	2·302	2·4004	2·413	251·00	1·54	2·61	2·508	2·50	0·18
9	346·43994	5·21755	3·89	3·03	3·302	3·4004	3·413	252·00	0·77	0·11	0·009	0·00	1·18
10	87·81470	6·21755	0·38	0·47	0·749	0·8489	0·862	253·00	0·01	1·11	1·009	1·00	2·18
11	189·18946	0·16662	1·38	1·47	1·749	1·8489	1·862	254·00	1·01	2·11	2·009	2·00	3·18
12	290·56423	1·16662	2·38	2·47	2·749	2·8489	2·862	255·00	0·24	3·11	3·009	3·00	0·59
13	31·93899	2·16662	3·38	3·47	0·196	0·2975	0·310	256·00	1·24	0·61	0·509	0·50	1·59
14	133·31375	3·16662	4·38	0·92	1·196	1·2975	1·310	257·00	0·47	1·61	1·509	1·50	2·59
15	234·68851	4·16662	0·87	1·92	2·196	2·2975	2·310	258·00	1·47	2·61	2·509	2·50	0·01
16	336·06327	5·16662	1·87	2·92	3·196	3·2975	3·310	259·00	0·70	0·11	0·009	0·00	1·01
17	77·43803	6·16662	2·87	0·36	0·643	0·7461	0·759	260·00	1·70	1·11	1·009	1·00	2·01
18	178·81280	0·11570	3·87	1·36	1·643	1·7461	1·759	261·00	0·93	2·11	2·009	2·00	3·01
19	280·18756	1·11570	0·36	2·36	2·643	2·7461	2·759	262·00	0·16	3·11	3·009	3·00	0·43

In Leap Year diminish the date in Columns 1, 15, by 1 day after Feb. 28.

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

5	6	7	8	9				3	4	5	6
Day	P	Q	R	S	T	U	V	W	X	Y	Z
					d		d	d	d		
July 30	578	1 48 3	1 5141	1 488	1 48	1 54796	1 8	1 495	1 48	0 9	1 1
31	0 581	4803	0 7388	0 712	0 71	54796	8	495	48	1 9	1
Aug 1	584	3 48032	1 7388	1 71	1 71	3 54796	0	3 495	3 48	9	3 1
2	586	0 92914	0 9635	0 937	0 93	0 9979	1	944	0 93	0 4	0 6
3	0 589	1 92914	0 188	0 161	16	1 99792	2 2	1 944	1 93	1 4	1 6
4	0 59	9 914	1 1882	1 161	1 16	2 99792	3 2	2 944	93	4	2 6
5	0 595	37796	0 4129	0 385	0 38	44789	0 7	0 393	0 38	3 4	0
6	0 597	1 37796	1 41 9	1 385	1 38	1 44789	1 7	1 393	1 38	0 9	1 0
7	0 600	2 37796	0 6376	0 610	0 60	2 44789	2 7	2 393	2 38	1 9	2 0
8	603	3 37796	1 6376	1 610	1 60	3 44789	0 1	3 393	3 38	9	3 0
9	0 605	0 8 678	0 86 3	0 834	0 83	0 89785	1 1	0 84	0 83	0 4	0 5
10	0 608	1 8 678	0 087	0 059	0 05	1 89785	1	1 84	1 83	1 4	1 5
11	0 611	2 8 678	1 0870	1 059	1 05	2 89785	3 1	842	2 83	2 4	5
12	0 614	0 7560	0 3117	0 83	0 28	3478	0 6	91	0 28	3 4	3 5
13	0 616	1 7560	1 3117	1 283	1 28	1 3478	1 6	1 91	1 28	0 9	9
14	619	2 2756	0 5364	508	0 50	2 34782	2 6	2 291	2 8	1 9	1 9
15	0 6 2	3 7560	1 5364	1 508	1 50	3 3478	0 0	3 91	3 28	9	2 9
16	0 6 5	0 72442	0 7611	0 73	0 73	0 79779	1 0	0 740	0 73	0 4	0 4
17	0 6 7	1 7244	1 7611	1 73	1 73	1 79779	2 0	1 740	1 73	1 4	1 4
18	0 630	72442	0 9858	0 957	0 95	2 79779	3 0	740	2 73	2 4	2 4
19	0 633	0 17323	0 21 5	0 181	0 18	0 24775	0 5	189	0 18	3 4	3 4
20	636	1 173 3	1 2105	1 181	1 18	1 24775	1 5	1 189	1 18	0 9	0 8
21	0 638	2 17323	0 435	0 4 6	0 40	2 4775	2 5	2 189	2 18	1 9	1 8
22	641	3 173 3	1 435	1 406	1 40	3 4775	3 5	3 189	3 18	2 9	2 8
23	0 644	0 62205	0 6599	630	0 62	0 6977	0 9	638	0 63	0 4	2
24	647	1 6 05	1 6599	1 63	1 6	1 6977	1 9	1 638	1 63	1 4	1
25	0 649	2 6 205	8846	0 855	0 85	6977	9	638	63	4	2
26	652	0 07087	0 1093	0 079	0 07	14768	0 4	87	0 07	3 4	3
27	0 655	1 07087	1 1093	1 079	1 07	1 14768	1 4	1 087	1 07	0 9	7
28	0 658	2 07087	0 3340	0 304	30	2 14768	2 4	2 087	7	9	1 7
29	0 660	3 7087	1 3340	1 3 4	1 30	3 14768	3 4	3 087	3 07	9	7
30	663	0 51969	5587	0 5 8	0 52	0 59765	8	536	0 5	4	0 1
31	0 666	1 51969	1 5587	1 5 8	1 5	1 59765	1 8	1 536	1 52	1 4	1 1
Sept 1	0 668	2 51969	0 7834	0 753	75	2 59765	8	2 536	2 52	2 4	1
2	0 671	3 51969	0 081	1 753	1 75	0 04761	0 3	3 536	3 5	3 4	3 1
3	674	0 96851	1 081	0 977	0 97	1 4761	1 3	0 985	0 97	9	0 6
4	677	1 96851	0 2328	0 201	2	2 4761	3	1 985	1 97	1 9	1 6
5	0 679	96851	1 3 8	1 1	1 20	3 04761	3 3	985	97	9	2 6
6	0 68	0 41733	4575	0 426	0 4	0 49758	0 7	0 435	4	0 4	0 0
7	0 685	1 41733	1 4575	1 426	1 42	1 49758	1 7	1 435	1 4	1 4	1 0
8	688	2 41733	0 68	650	0 64	49758	7	435	42	4	0
9	0 69	3 41733	1 68	1 650	1 64	3 49758	0	3 435	3 4	3 4	3 0
10	0 693	0 86615	0 9 69	875	0 87	0 94754	1	0 884	0 87	0 9	0 5
11	0 696	1 86615	0 1315	0 099	0 9	1 94754	2 2	1 884	1 87	1 9	1 5
12	699	2 86615	1 1315	1 099	1 09	2 94754	3	884	2 87	2 9	2 5
13	0 701	0 31497	0 3562	0 3 4	3	0 39751	0 7	0 333	0 3	0 4	3 5
14	0 704	1 31497	1 3562	1 3 4	1 32	1 39751	1 7	1 333	1 32	1 4	0 9
15	707	2 31497	5809	0 548	0 54	39751	2 7	333	2 3	4	1 9
16	0 710	3 31497	1 5809	1 548	1 54	3 39751	0 1	3 333	3 32	3 4	2 9
17	0 712	0 76379	0 8056	0 773	0 77	0 84747	1 1	782	0 77	0 9	0 3
18	0 715	1 76379	0303	1 773	1 77	1 84747	1	1 78	1 77	1 9	1 3
19	0 718	2 76379	1 0303	997	0 99	84747	3 1	2 78	77	2 9	2 3

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Day	Mean Long.	A	B	C	D	E	F	G—J	K	L	M	N	O
	°	d	d	d	d	d	d	d	d	d	d	d	d
Sept. 20	21·56232	2·11570	1·36	3·36	0·091	0·1947	0·208	263·00	1·16	0·61	0·509	0·50	1·43
21	122·93708	3·11570	2·36	0·80	1·091	1·1947	1·208	264·00	0·39	1·61	1·509	1·50	2·43
22	224·31184	4·11570	3·36	1·80	2·091	2·1947	2·208	265·00	1·39	2·61	2·509	2·50	3·43
23	325·68660	5·11570	4·36	2·80	3·091	3·1947	3·208	266·00	0·62	0·11	0·009	0·00	0·84
24	67·06137	6·11570	0·85	0·25	0·538	0·6433	0·657	267·00	1·62	1·11	1·009	1·00	1·84
25	168·43613	0·06477	1·85	1·25	1·538	1·6433	1·657	268·00	0·85	2·11	2·009	2·00	2·84
26	269·81089	1·06477	2·85	2·25	2·538	2·6433	2·657	269·00	0·08	3·11	3·009	3·00	0·26
27	11·18565	2·06477	3·85	3·25	3·538	0·0918	0·105	270·00	1·08	0·61	0·509	0·50	1·26
28	112·56041	3·06477	0·34	0·69	0·985	1·0918	1·105	271·00	0·31	1·61	1·509	1·50	2·26
29	213·93517	4·06477	1·34	1·69	1·985	2·0918	2·105	272·00	1·31	2·61	2·509	2·50	3·26
30	315·30994	5·06477	2·34	2·69	2·985	3·0918	3·105	273·00	0·54	0·12	0·009	0·00	0·68
Oct. 1	56·68470	6·06477	3·34	0·13	0·432	0·5404	0·554	274·00	1·54	1·12	1·009	1·00	1·68
2	158·05946	0·01384	4·34	1·13	1·432	1·5404	1·554	275·00	0·77	2·12	2·009	2·00	2·68
3	259·43422	1·01384	0·82	2·13	2·432	2·5404	2·554	276·00	0·01	3·12	3·009	3·00	0·09
4	0·80898	2·01384	1·82	3·13	3·432	3·5404	0·003	277·00	1·01	0·62	0·509	0·50	1·09
5	102·18374	3·01384	2·82	0·58	0·879	0·9890	1·003	278·00	0·24	1·62	1·509	1·50	2·09
6	203·55851	4·01384	3·82	1·58	1·879	1·9890	2·003	279·00	1·24	2·62	2·509	2·50	3·09
7	304·93327	5·01384	0·31	2·58	2·879	2·9890	3·003	280·00	0·47	0·12	0·010	0·00	0·51
8	46·30803	6·01384	1·31	0·02	0·326	0·4376	0·452	281·00	1·47	1·12	1·010	1·00	1·51
9	147·68279	7·01384	2·31	1·02	1·326	1·4376	1·452	282·00	0·70	2·12	2·010	2·00	2·51
10	249·05755	0·96291	3·31	2·02	2·326	2·4376	2·452	283·00	1·70	3·12	3·010	3·00	3·51
11	350·43231	1·96291	4·31	3·02	3·326	3·4376	3·452	284·00	0·93	0·62	0·510	0·50	0·93
12	91·80708	2·96291	0·80	0·46	0·774	0·8861	0·900	285·00	0·16	1·62	1·510	1·50	1·93
13	193·18184	3·96291	1·80	1·46	1·774	1·8861	1·900	286·00	1·16	2·62	2·510	2·50	2·93
14	294·55660	4·96291	2·80	2·46	2·774	2·8861	2·900	287·00	0·39	0·12	0·010	0·00	0·34
15	35·93136	5·96291	3·80	3·46	0·221	0·3347	0·349	288·00	1·39	1·12	1·010	1·00	1·34
16	137·30612	6·96291	0·29	0·91	1·221	1·3347	1·349	289·00	0·62	2·12	2·010	2·00	2·34
17	238·68088	0·91199	1·29	1·91	2·221	2·3347	2·349	290·00	1·62	3·12	3·010	3·00	3·34
18	340·05565	1·91199	2·29	2·91	3·221	3·3347	3·349	291·00	0·85	0·62	0·510	0·50	0·76
19	81·43041	2·91199	3·29	0·35	0·668	0·7833	0·798	292·00	0·08	1·62	1·510	1·50	1·76
20	182·80517	3·91199	4·29	1·35	1·668	1·7833	1·798	293·00	1·08	2·62	2·510	2·50	2·76
21	284·17993	4·91199	0·78	2·35	2·668	2·7833	2·798	294·00	0·31	0·12	0·010	0·00	0·18
22	25·55469	5·91199	1·78	3·35	0·115	0·2319	0·247	295·00	1·31	1·12	1·010	1·00	1·18
23	126·92945	6·91199	2·78	0·79	1·115	1·2319	1·247	296·00	0·54	2·12	2·010	2·00	2·18
24	228·30422	0·86106	3·78	1·79	2·115	2·2319	2·247	297·00	1·54	3·12	3·010	3·00	3·18
25	329·67898	1·86106	0·27	2·79	3·115	3·2319	3·247	298·00	0·78	0·63	0·510	0·50	0·59
26	71·05374	2·86106	1·27	0·24	0·562	0·6804	0·695	299·00	0·01	1·63	1·510	1·50	1·59
27	172·42850	3·86106	2·27	1·24	1·562	1·6804	1·695	300·00	1·01	2·63	2·510	2·50	2·59
28	273·80326	4·86106	3·27	2·24	2·562	2·6804	2·695	301·00	0·24	0·13	0·010	0·00	0·01
29	15·17802	5·86106	4·27	3·24	0·009	0·1290	0·144	302·00	1·24	1·13	1·010	1·00	1·01
30	116·55279	6·86106	0·76	0·68	1·009	1·1290	1·144	303·00	0·47	2·13	2·010	2·00	2·01
31	217·92755	0·81013	1·76	1·68	2·009	2·1290	2·144	304·00	1·47	3·13	3·010	3·00	3·01
Nov. 1	319·30231	1·81013	2·76	2·68	3·009	3·1290	3·144	305·00	0·70	0·63	0·510	0·50	0·43
2	60·67707	2·81013	3·76	0·12	0·457	0·5776	0·593	306·00	1·70	1·63	1·510	1·50	1·43
3	162·05183	3·81013	0·25	1·12	1·457	1·5776	1·593	307·00	0·93	2·63	2·510	2·50	2·43
4	263·42659	4·81013	1·25	2·12	2·457	2·5776	2·593	308·00	0·16	0·13	0·011	0·00	3·43
5	4·80136	5·81013	2·25	3·12	3·457	0·0262	0·042	309·00	1·16	1·13	1·011	1·00	0·85
6	106·17612	6·81013	3·25	0·57	0·904	1·0262	1·042	310·00	0·39	2·13	2·011	2·00	1·85
7	207·55088	0·75921	4·25	1·57	1·904	2·0262	2·042	311·00	1·39	3·13	3·011	3·00	2·85
8	308·92564	1·75921	0·74	2·57	2·904	3·0262	3·042	312·00	0·62	0·63	0·511	0·50	0·26
9	50·30040	2·75921	1·74	0·01	0·351	0·4748	0·490	313·00	1·62	1·63	1·511	1·50	1·26
10	151·67517	3·75921	2·74	1·01	1·351	1·4748	1·490	314·00	0·85	2·63	2·511	2·50	2·26

In Leap Year diminish the date in Columns 1, 15, by 1 day after Feb. 28.

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

5	6	7	8	9				3	4	5	6
Day	P	Q	R	S	T	U	V	W	X	Y	Z
	y	d				d	d	d	d	d	d
Sept 20	721	0 1 61	0 2550	0 2	0 1	0 9744	0 6	0 31	0 22	0 4	3 3
21	0 723	1 1 61	1 2550	1	1 1	1 9744	1 6	1 31	1	1 4	0 8
22	0 7 6	2 21 61	0 4797	0 446	0 44	2 9744	6	31		2 4	1 8
23	0 729	3 1 61	1 4797	1 446	1 44	3 29744	0 0	3 31	3	3 4	2 8
24	0 73	0 6614	0 7 44	671	0 66	0 74740	1 0	0 680	67	0 9	2
25	734	1 6614	1 7044	1 671	1 66	1 74740		1 680	1 67	1 9	1
26	0 737	6614	0 9 91	0 895	0 89	74740	3 0	680	67	2 9	
27	0 74	11 4	0 1538	1 0	0 11	0 19737	5	1 9	0 11	0 4	3
28	0 74	1 11024	1 538	1 12	1 11	1 19737	1 5	1 129	1 11	1 4	7
29	0 745	11 4	0 3785	0 344	0 34	2 19737	2 5	2 129	11	2 4	1 7
30	748	3 110 4	3785	1 344	1 34	3 19737	3 5	3 1 9	3 11	3 4	2 7
Oct 1	751	0 55906	0 603	0 569	0 56	0 64734	0 9	578	0 56	0 9	0 1
2	753	559 6	1 603	1 569	1 56	1 64734	1 9	1 578	1 56	1 9	1 1
3	0 756	2 559 6	0 8 79	0 793	79	2 64734	9	578	56	9	1
4	0 59	0 0 788	05 6	017	0 01	9730	0 4	0 0 7	0 1	0 4	3 1
5	0 762	1 788	1 05 6	1 017	1 01	1 09730	1 4	1 0 7	1 01	1 4	0 6
6	764	0 788	0 2773	0 24	0 23	09730	4	027	2 01	4	1 6
7	0 767	3 00788	1 773	1 24	1 23	3 9730	3 4	3 027	3 01	3 4	2 6
8	0 770	0 45670	0 50 0	0 466	0 46	0 54727	8	0 476	0 46	0 9	0 0
9	0 773	1 45670	5020	1 466	1 46	1 547 7	1 8	1 476	1 46	1 9	1 0
10	0 775	2 45670	0 7 67	0 691	0 68	2 547 7	2 8	476	46	9	2 0
11	778	3 45670	1 7 67	1 691	1 68	3 54727	0 3	3 476	3 46	0 4	3 0
12	0 781	0 9055	0 9514	915	0 91	0 99723	1 3	0 9 5	0 91	1 4	0 4
13	0 784	1 9055	0 1761	0 140	0 13	1 99723	3	1 9 5	1 91	2 4	1 4
14	0 786	9 552	1 1761	1 140	1 13	997 3	3 3	2 9 5	91	3 4	4
15	0 789	0 35434	4 08	0 364	0 36	0 44720	0 7	0 374	0 36	0 9	3 4
16	0 79	1 35434	1 4 8	1 364	1 36	1 44720	1 7	1 374	1 36	1 9	0 9
17	795	35434	0 6 55	0 589	58	447 0	2 7	374	2 36	2 9	1 9
18	0 797	3 35434	1 6 55	1 589	1 58	3 447 0		3 374	3 36	0 4	2 9
19	0 800	0 80316	0 8502	0 813	0 81	0 89716	1	0 823	0 81	1 4	0 3
20	0 803	1 8 316	0 0749	038	0 3	1 89716	2	1 8 3	1 81	2 4	1 3
21	0 805	80316	1 0749	1 38	1 03	89716	3 2	8 3	2 81	3 4	3
22	0 808	0 5198	0 996	0 6	0 5	34713	0 6	0 27	0 6	0 9	3 3
23	0 811	1 5198	1 2996	1 62	1 5	1 34713	1 6	1 72	1 26	1 9	0 8
24	0 814	5198	0 5243	0 487	0 48	2 34713	2 6	2 7	2 6	2 9	1 8
25	0 816	3 5198	1 5 43	1 487	1 48	3 34713	0 1	3 272	3 26	0 4	2 8
26	0 819	0 7 80	0 7489	0 711	0 70	0 797 9	1 1	0 7 1	0 71	1 4	0
27	0 8	1 7 08	1 7489	1 711	1 70	1 79709	2 1	1 721	1 71	4	1 2
28	8 5	70080	0 9736	0 936	0 93	79709	3 1	2 7 1	2 71	3 4	2 2
29	0 8 7	14961	0 1983	0 160	0 15	0 247 6	0 5	0 170	0 15	0 9	3 2
30	0 830	1 14961	1 1983	1 16	1 15	1 4706	1 5	1 170	1 15	1 9	0 7
31	0 833	14961	0 4 30	0 385	0 38	2 4706	2 5	2 17	2 15	9	1 7
Nov 1	0 836	3 14961	1 4 3	1 385	1 38	3 4706	0 0	3 170	3 15	0 4	2 7
2	0 838	59843	0 6477	0 609	0 60	0 69702	1 0	620	0 60	1 4	1
3	0 841	1 59843	1 6477	1 609	1 60	1 69702	2 0	1 620	1 60	4	1 1
4	0 844	2 59843	0 8724	833	0 83	6970	3 0	2 6 0	2 60	3 4	2 1
5	0 847	04725	0 971	0 58	0 05	0 14699	0 5	0 069	5	0 9	3 1
6	0 849	1 047 5	1 0971	1 058	1 05	1 14699	1 5	1 69	1 05	1 9	0 5
7	0 85	047 5	0 3 18	0 8	0 27	14699	2 5	2 069	05	9	1 5
8	0 855	3 04725	1 3 18	1 28	1 7	3 14699	3 5	3 069	3 05	0 4	5
9	0 858	0 49607	0 5465	0 507	0 50	0 59696	0 9	0 518	0 50	1 4	0 0
10	0 860	1 49607	1 5465	1 507	1 50	1 59696	1 9	1 518	1 50	2 4	1 0

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Day	Mean Long.	A	B	C	D	E	F	G—J	K	L	M	N	O
	°	d	d	d	d	d	d	d	d	d	d	d	d
Nov. 11	253.04993	4.75921	3.74	2.01	2.351	2.4748	2.490	315.00	0.08	0.13	0.011	0.00	3.26
12	354.42469	5.75921	0.22	3.01	3.351	3.4748	3.490	316.00	1.08	1.13	1.011	1.00	0.68
13	95.79945	6.75921	1.22	0.45	0.798	0.9233	0.939	317.00	0.31	2.13	2.011	2.00	1.68
14	197.17421	0.70828	2.22	1.45	1.798	1.9233	1.939	318.00	1.31	3.13	3.011	3.00	2.68
15	298.54897	1.70828	3.22	2.45	2.798	2.9233	2.939	319.00	0.54	0.64	0.511	0.50	0.10
16	39.92374	2.70828	4.22	3.45	0.245	0.3719	0.388	320.00	1.54	1.64	1.511	1.50	1.10
17	141.29850	3.70828	0.71	0.90	1.245	1.3719	1.388	321.00	0.78	2.64	2.511	2.50	2.10
18	242.67326	4.70828	1.71	1.90	2.245	2.3719	2.388	322.00	0.01	0.14	0.011	0.00	3.10
19	344.04802	5.70828	2.71	2.90	3.245	3.3719	3.388	323.00	1.01	1.14	1.011	1.00	0.51
20	85.42278	6.70828	3.71	0.34	0.692	0.8205	0.837	324.00	0.24	2.14	2.011	2.00	1.51
21	186.79754	0.65735	0.20	1.34	1.692	1.8205	1.837	325.00	1.24	3.14	3.011	3.00	2.51
22	288.17231	1.65735	1.20	2.34	2.692	2.8205	2.837	326.00	0.47	0.64	0.511	0.50	3.51
23	29.54707	2.65735	2.20	3.34	0.140	0.2691	0.285	327.00	1.47	1.64	1.511	1.50	0.93
24	130.92183	3.65735	3.20	0.78	1.140	1.2691	1.285	328.00	0.70	2.64	2.511	2.50	1.93
25	232.29659	4.65735	4.20	1.78	2.140	2.2691	2.285	329.00	1.70	0.14	0.011	0.00	2.93
26	333.67135	5.65735	0.69	2.78	3.140	3.2691	3.285	330.00	0.93	1.14	1.011	1.00	0.35
27	75.04611	6.65735	1.69	0.22	0.587	0.7176	0.734	331.00	0.16	2.14	2.011	2.00	1.35
28	176.42088	0.60642	2.69	1.22	1.587	1.7176	1.734	332.00	1.16	3.14	3.011	3.00	2.35
29	277.79564	1.60642	3.69	2.22	2.587	2.7176	2.734	333.00	0.39	0.64	0.511	0.49	3.35
30	19.17040	2.60642	0.18	3.22	0.034	0.1662	0.183	334.00	1.39	1.64	1.511	1.49	0.76
Dec. 1	120.54516	3.60642	1.18	0.67	1.034	1.1662	1.183	335.00	0.62	2.64	2.511	2.49	1.76
2	221.91992	4.60642	2.18	1.67	2.034	2.1662	2.183	336.00	1.62	0.14	0.011	3.49	2.76
3	323.29468	5.60642	3.18	2.67	3.034	3.1662	3.183	337.00	0.85	1.14	1.011	0.99	0.18
4	64.66945	6.60642	4.18	0.11	0.481	0.6148	0.632	338.00	0.08	2.14	2.011	1.99	1.18
5	166.04421	0.55550	0.67	1.11	1.481	1.6148	1.632	339.00	1.08	3.14	3.011	2.99	2.18
6	267.41897	1.55550	1.67	2.11	2.481	2.6148	2.632	340.00	0.31	0.64	0.512	0.49	3.18
7	8.79373	2.55550	2.67	3.11	3.481	0.0634	0.080	341.00	1.31	1.64	1.512	1.49	0.60
8	110.16849	3.55550	3.67	0.55	0.928	1.0634	1.080	342.00	0.55	2.64	2.512	2.49	1.60
9	211.54325	4.55550	0.16	1.55	1.928	2.0634	2.080	343.00	1.55	0.15	0.012	3.49	2.60
10	312.91802	5.55550	1.16	2.55	2.928	3.0634	3.080	344.00	0.78	1.15	1.012	0.99	0.01
11	54.29278	6.55550	2.16	0.00	0.375	0.5119	0.529	345.00	0.01	2.15	2.012	1.99	1.01
12	155.66754	0.50457	3.16	1.00	1.375	1.5119	1.529	346.00	1.01	3.15	3.012	2.99	2.01
13	257.04230	1.50457	4.16	2.00	2.375	2.5119	2.529	347.00	0.24	0.65	0.512	0.49	3.01
14	358.41706	2.50457	0.65	3.00	3.375	3.5119	3.529	348.00	1.24	1.65	1.512	1.49	0.43
15	99.79182	3.50457	1.65	0.44	0.823	0.9605	0.978	349.00	0.47	2.65	2.512	2.49	1.43
16	201.16659	4.50457	2.65	1.44	1.823	1.9605	1.978	350.00	1.47	0.15	0.012	3.49	2.43
17	302.54135	5.50457	3.65	2.44	2.823	2.9605	2.978	351.00	0.70	1.15	1.012	0.99	3.43
18	43.91611	6.50457	0.14	3.44	0.270	0.4091	0.427	352.00	1.70	2.15	2.012	1.99	0.85
19	145.29087	0.45364	1.14	0.88	1.270	1.4091	1.427	353.00	0.93	3.15	3.012	2.99	1.85
20	246.66563	1.45364	2.14	1.88	2.270	2.4091	2.427	354.00	0.16	0.65	0.512	0.49	2.85
21	348.04039	2.45364	3.14	2.88	3.270	3.4091	3.427	355.00	1.16	1.65	1.512	1.49	0.26
22	89.41516	3.45364	4.14	0.33	0.717	0.8577	0.875	356.00	0.39	2.65	2.512	2.49	1.26
23	190.78992	4.45364	0.63	1.33	1.717	1.8577	1.875	357.00	1.39	0.15	0.012	3.49	2.26
24	292.16468	5.45364	1.63	2.33	2.717	2.8577	2.875	358.00	0.62	1.15	1.012	0.99	3.26
25	33.53944	6.45364	2.63	3.33	0.164	0.3063	0.324	359.00	1.62	2.15	2.012	1.99	0.68
26	134.91420	0.40272	3.63	0.77	1.164	1.3063	1.324	360.00	0.85	3.15	3.012	2.99	1.68
27	236.28896	1.40272	0.11	1.77	2.164	2.3063	2.324	361.00	0.08	0.65	0.512	0.49	2.68
28	337.66373	2.40272	1.11	2.77	3.164	3.3063	3.324	362.00	1.08	1.65	1.512	1.49	0.10
29	79.03849	3.40272	2.11	0.21	0.611	0.7548	0.773	363.00	0.31	2.65	2.512	2.49	1.10
30	180.41325	4.40272	3.11	1.21	1.611	1.7548	1.773	364.00	1.31	0.15	0.012	3.49	2.10
31	281.78801	5.40272	4.11	2.21	2.611	2.7548	2.773	365.00	0.55	1.15	1.012	0.99	3.10
32	23.16277	6.40272	0.60	3.21	0.058	0.2034	0.222	366.00	1.55	2.15	2.012	1.99	0.51

In Leap Year diminish the date in Columns 1, 15, by 1 day after Feb. 28.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

5	6	7	8	9				3	4	5	6
Day	P	Q	R	S	T	U	V	W	X	Y	Z
			l	d			l				d
Nov 11	863	49607	0 771	0 731	72	59696	9	2 518	2 50	3 4	2
12	0 866	3 49607	1 7712	1 731	1 72	0 0469	0 4	3 518	3 50	0 9	3 0
13	0 868	0 94489	0 9959	0 956	0 95	1 0469	1 4	967	0 95	1 9	0 4
14	0 871	1 94489	0 2206	0 180	0 17	0469	2 4	1 967	1 95	2 9	1 4
15	0 874	2 94489	1 2 6	1 180	1 17	3 0469	3 4	967	95	0 4	2 4
16	877	0 39371	0 4453	0 405	0 40	0 49689	0 8	0 416	0 40	1 4	3 4
17	0 879	1 39371	1 4453	1 4 5	1 4	1 49689	1 8	1 416	1 40	2 4	0 9
18	88	2 39371	6700	0 6 9	0 6	49689	8	2 416	40	3 4	1 9
19	0 885	3 39371	1 6700	1 629	1 6	3 49689	0 3	3 416	3 40	0 9	2 9
20	888	0 84253	0 8947	0 854	0 85	0 94685	1 3	0 865	0 85	1 9	0 3
21	890	1 84 53	0 1194	0 078	0 07	1 94685	3	1 865	1 85	2 9	1 3
22	0 893	2 84 53	1 1194	1 078	1 07	94685	3 3	2 865	2 85	0 4	2 3
23	0 896	0 9135	0 3441	0 303	0 9	0 3968	0 7	0 314	0 30	1 4	3 3
24	0 899	1 29135	1 3441	1 303	1 9	1 3968	1 7	1 314	1 30	2 4	0 8
25	9 1	9135	0 5688	0 527	0 52	39682	2 7	314	2 30	3 4	1 8
26	0 904	3 9135	1 5688	1 527	1 5	3 3968	0	3 314	3 30	0 9	2 8
27	0 907	74017	0 7935	0 75	0 74	0 84678	1	0 763	0 75	1 9	0 2
28	0 910	1 74017	0 018	1 752	1 74	1 84678	2 2	1 763	1 75	2 9	1 2
29	0 912	74017	1 0182	0 976	0 97	2 84678	3 2	763	2 75	0 4	2 2
30	0 915	0 18899	0 2429	0 201	0 19	0 29675	0 6	0 21	0 19	1 4	3 2
Dec 1	918	1 18899	1 429	1 01	1 19	1 9675	1 6	1 212	1 19	2 4	0 6
2	0 921	2 18899	0 4676	0 425	0 42	2 9675	2 6	2 212	2 19	3 4	1 6
3	0 923	3 18899	1 4676	1 4 5	1 42	3 9675	0 1	3 21	3 19	0 9	2 6
4	0 926	0 63780	0 69 3	0 649	0 64	0 74671	1 1	0 661	0 64	1 9	0 1
5	0 9 9	1 63780	1 69 3	1 649	1 64	1 74671	2 1	1 661	1 64	2 9	1 1
6	0 93	63780	0 9170	0 874	0 87	2 74671	3 1	2 661	2 64	0 4	2 1
7	0 934	0 08662	0 1417	0 098	9	0 19668	0 5	0 110	0 09	1 4	3 1
8	0 937	1 0866	1 1417	1 098	1 09	1 19668	1 5	1 110	1 09	2 4	0 5
9	0 940	08662	0 3664	0 323	0 31	19668	2 5	2 110	09	3 4	1 5
10	0 942	3 0866	1 3664	1 3 3	1 31	3 19668	0 0	3 110	3 09	9	2 5
11	0 945	53544	0 5910	0 547	0 54	0 64664	1 0	0 559	0 54	1 9	0 0
12	0 948	1 53544	1 5910	1 547	1 54	1 64664	0	1 559	1 54	2 9	1 0
13	0 951	53544	8157	0 77	0 76	2 64664	3 0	2 559	54	0 4	2 0
14	0 953	3 53544	0 0404	1 772	1 76	0 09661	0 4	0 008	3 54	1 4	3 0
15	0 956	0 98426	1 0404	0 996	0 99	1 09661	1 4	1 008	0 99	2 4	0 4
16	0 959	1 98426	0 651	0 221	0 21	2 09661	2 4	2 008	1 99	3 4	1 4
17	0 962	2 98426	1 2651	1 221	1 21	3 09661	3 4	3 008	2 99	0 9	2 4
18	0 964	0 43308	0 4898	0 445	0 44	0 54657	0 9	0 457	0 44	1 9	3 4
19	0 967	1 43308	1 4898	1 445	1 44	1 54657	1 9	1 457	1 44	2 9	0 9
20	0 970	2 43308	0 7145	0 670	0 66	2 54657	2 9	2 457	2 44	0 4	1 9
21	0 973	3 43308	1 7145	1 670	1 66	3 54657	0 4	3 457	3 44	1 4	2 9
22	975	0 88190	0 939	894	88	0 99654	1 4	0 906	0 89	2 4	0 3
23	0 978	1 88190	0 1639	0 119	0 11	1 99654	2 4	1 906	1 89	3 4	1 3
24	0 981	2 88190	1 1639	1 119	1 11	2 99654	3 4	906	89	0 9	2 3
25	0 984	0 3307	0 3886	0 343	0 33	0 44650	0 8	0 356	0 34	1 9	3 3
26	0 986	1 33072	1 3886	1 343	1 33	1 4465	1 8	1 356	1 34	2 9	0 7
27	0 989	2 3307	0 6133	0 568	0 56	44650	2 8	2 356	2 34	0 4	1 7
28	0 992	3 33 72	1 6133	1 568	1 56	3 44650	0 3	3 356	3 34	1 4	2 7
29	0 995	0 77954	0 8380	0 792	0 78	89646	1 3	8 5	0 79	2 4	0 2
30	0 997	1 77954	0 0627	0 017	0 01	1 89646	2 3	1 8 5	1 79	3 4	1 2
31	1 000	2 77954	1 0627	1 017	1 01	89646	3 3	805	2 79	0 9	2
32	1 0 3	0 2 836	0 2874	0 241	0 23	34643	0 7	0 254	0 23	1 9	3 2

I L pY dimi i h th dat i C l m by d y fte F b 8

Tables of Longitude, Latitude, and Radius Vector

XI Motion of Mean Longitude for Parts of a Day

1	2	1	2
Days	Mean Long.	Days	Mean Long.
d	°	d	°
0·01	1·01375	0·51	51·70113
·02	2·02750	·52	52·71488
·03	3·04124	·53	53·72862
·04	4·05499	·54	54·74237
·05	5·06874	·55	55·75612
0·06	6·08249	0·56	56·76987
·07	7·09623	·57	57·78361
·08	8·10998	·58	58·79736
·09	9·12373	·59	59·81111
·10	10·13748	·60	60·82486
0·11	11·15122	0·61	61·83860
·12	12·16497	·62	62·85235
·13	13·17872	·63	63·86610
·14	14·19247	·64	64·87985
·15	15·20621	·65	65·89360
0·16	16·21996	0·66	66·90734
·17	17·23371	·67	67·92109
·18	18·24746	·68	68·93484
·19	19·26120	·69	69·94859
·20	20·27495	·70	70·96233
0·21	21·28870	0·71	71·97608
·22	22·30245	·72	72·98983
·23	23·31620	·73	74·00358
·24	24·32994	·74	75·01732
·25	25·34369	·75	76·03107
0·26	26·35744	0·76	77·04482
·27	27·37119	·77	78·05857
·28	28·38493	·78	79·07231
·29	29·39868	·79	80·08606
·30	30·41243	·80	81·09981
0·31	31·42618	0·81	82·11356
·32	32·43992	·82	83·12730
·33	33·45367	·83	84·14105
·34	34·46742	·84	85·15480
·35	35·48117	·85	86·16855
0·36	36·49491	0·86	87·18230
·37	37·50866	·87	88·19604
·38	38·52241	·88	89·20979
·39	39·53616	·89	90·22354
·40	40·54990	·90	91·23729
0·41	41·56365	0·91	92·25103
·42	42·57740	·92	93·26478
·43	43·59115	·93	94·27853
·44	44·60490	·94	95·29228
·45	45·61864	·95	96·30602
0·46	46·63239	0·96	97·31977
·47	47·64614	·97	98·33352
·48	48·65989	·98	99·34727
·49	49·67363	·99	100·36101
·50	50·68738	1·00	101·37476

3	4	3	4
Days	Mean Long.	Days	Mean Long.
d	°	d	°
0·0001	0·01014	0·0051	0·51701
2	·02027	52	·52715
3	·03041	53	·53729
4	·04055	54	·54742
5	·05069	55	·55756
0·0006	0·06083	0·0056	0·56770
7	·07096	57	·57784
8	·08110	58	·58797
9	·09124	59	·59811
10	·10137	60	·60825
0·0011	0·11151	0·0061	0·61839
12	·12165	62	·62852
13	·13179	63	·63866
14	·14192	64	·64880
15	·15206	65	·65894
0·0016	0·16220	0·0066	0·66907
17	·17234	67	·67921
18	·18247	68	·68935
19	·19261	69	·69949
20	·20275	70	·70962
0·0021	0·21289	0·0071	0·71976
22	·22302	72	·72990
23	·23316	73	·74004
24	·24330	74	·75017
25	·25344	75	·76031
0·0026	0·26357	0·0076	0·77045
27	·27371	77	·78059
28	·28385	78	·79072
29	·29399	79	·80086
30	·30412	80	·81100
0·0031	0·31426	0·0081	0·82114
32	·32440	82	·83127
33	·33454	83	·84141
34	·34467	84	·85155
35	·35481	85	·86169
0·0036	0·36495	0·0086	0·87182
37	·37509	87	·88196
38	·38522	88	·89210
39	·39536	89	·90224
40	·40550	90	·91237
0·0041	0·41564	0·0091	0·92251
42	·42577	92	·93265
43	·43591	93	·94279
44	·44605	94	·95292
45	·45619	95	·96306
0·0046	0·46632	0·0096	0·97320
47	·47646	97	·98334
48	·48660	98	·99347
49	·49674	99	1·00361
50	0·50687	0·0100	1·01375

For the Arguments A—Z (omitting P), the fraction of a day must be added to the sum of the entries taken from Tables IX, X.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XII Equation of Longitude Argument A

		3	4
A	Equation	Δ	½ Δ²
d 0 00	1 7500	+1934	0
01	1 9434	1934	− 1
02	1 11367	1932	1
03	1 13 98	193	1
04	15 8	1929	1
05	1 17156	19 6	
0 06	1 19 8	+19 3	−
07	1 1001	1918	3
08	1 915	191	3
09	48 4	1907	
10	1 673	19	4
0 11	1 8628	+1895	− 4
12	1 30519	1887	4
13	1 3 4	1879	4
14	1 34277	1871	5
15	1 36143	1861	5
0 16	1 37999	+1851	− 5
17	1 39845	1841	6
18	1 41680	183	6
19	1 43504	1819	6
20	1 45316	18 5	8
0 21	1 47113	+1791	− 6
22	1 48898	1779	6
23	1 50671	1766	8
24	1 5 4 9	175	8
25	1 54171	1734	9
0 26	1 55896	+1719	− 7
27	1 57607	1702	9
28	1 59300	1684	9
29	1 60976	1668	9
30	1 62635	1650	10
0 31	1 64 75	+1631	9
32	1 65897	161	11
33	1 67498	1592	10
34	1 69 80	1571	11
35	1 7 640	1551	10
0 36	1 7218	+1530	− 1
37	1 73699	1508	11
38	1 75196	1487	11
39	1 7667	1463	13
40	1 781	1439	11
0 41	1 7955	+1416	−12
42	1 8 954	139	13
43	1 8 333	1367	1
44	1 83688	1343	13
45	1 85018	1317	14
0 46	1 86321	+1 91	− 1
47	1 8760	1266	14
48	1 8885	1 38	14
49	1 90 76	1 11	13
0 50	1 91 74	+1185	−13

		3	4
A	Equation	Δ	½ Δ²
d 0 50	1 91 74	+1185	−13
51	1 9 446	1158	15
52	1 93589	11 8	16
53	1 94701	1099	13
54	1 95787	107	15
55	1 96844	1043	15
0 56	1 9787	+1014	−15
57	1 98871	984	16
58	1 99839	953	15
59	00777	92	16
60	01683	892	15
0 61	0 560	+ 861	−16
62	2 3405	830	15
63	2 04220	799	16
64	5 3	768	16
65	05755	737	16
0 66	2 06476	+ 705	−17
67	07164	672	17
68	2 07819	639	16
69	08442	607	17
70	2 9032	574	17
0 71	2 09589	+ 541	−17
72	2 10113	508	16
73	10605	476	17
74	2 11064	442	18
75	2 11488	408	16
0 76	1188	+ 375	−18
77	2 12 37	340	17
78	2 1 560	307	16
79	1 851	274	17
80	13108	240	17
0 81	13331	+ 6	17
82	2 135 0	172	17
83	13675	138	18
84	13795	103	17
85	13881	70	16
0 86	2 13935	+ 36	−18
87	2 13953	+ 2	16
88	13939	− 3	18
89	13889	66	16
90	138 7	99	17
0 91	13691	− 134	−18
92	2 13540	168	17
93	13355	0	17
94	13137	236	18
95	12884	269	16
0 96	2 12599	− 30	−17
97	1 81	335	17
98	2 11929	368	16
99	2 11546	401	18
1 00	111 8	− 434	−16

		3	4
A	Equation	Δ	½ Δ²
1 00	11128	− 434	−16
01	2 10678	467	18
02	2 10194	500	16
03	09678	53	16
04	2 913	565	17
05	08549	597	16
1 06	2 07937	− 6 9	−16
07	2 07293	66	16
08	06618	691	16
09	05911	7 4	16
10	2 05173	754	16
1 11	04404	− 784	−15
12	03605	814	15
13	2 02776	845	16
14	01916	875	15
15	010 6	905	15
1 16	2 0106	− 934	−14
17	1 99158	96	14
18	1 9818	991	15
19	1 97177	10 0	15
20	1 96142	1049	14
1 21	1 95079	−1076	−13
22	1 93991	110	14
23	1 9 875	1130	14
24	1 91731	1157	13
25	1 9056	1183	14
1 26	1 89366	−1209	−13
27	1 88144	1235	13
28	1 86897	1259	1
29	1 856 7	1284	14
30	1 84329	1310	1
1 31	1 83007	−1333	−11
32	1 81663	1356	12
33	1 80 95	1379	11
34	1 789 5	140	1
35	1 7749	1425	1
1 36	1 76056	−1447	−11
37	1 74599	1468	11
38	1 73120	1489	10
39	1 7162	1508	10
40	1 7 104	1528	1
1 41	1 68566	−1549	−11
42	1 67007	1568	9
43	1 65431	1585	9
44	1 63837	1604	10
45	1 6 224	1621	8
1 46	1 60595	−1638	− 9
47	1 58949	1654	8
48	1 57287	1671	9
49	1 55608	1686	7
1 50	1 53916	−1700	− 8

		3	4
A	Equation	Δ	½ Δ²
1 50	1 53916	−170	− 8
51	1 5 08	1715	7
52	1 50486	17 9	7
53	1 48751	1742	7
54	1 47 0	1756	7
55	1 45 40	1768	6
1 56	1 43467	−1778	− 5
57	1 41684	1789	6
58	1 39889	1800	5
59	1 38084	1810	5
60	1 36269	1820	5
1 61	1 34445	18 9	− 5
62	1 3 612	1837	4
63	1 30771	1844	3
64	1 8924	1851	4
65	1 27 69	1858	3
1 66	1 5208	−1864	− 3
67	1 3342	1869	3
68	1 21470	1874	2
69	1 19594	1878	2
70	1 17714	1882	2
1 71	1 15831	−1885	− 2
72	1 13945	1887	1
73	1 1 057	1889	− 1
74	1 10167	1890	0
75	1 08 77	1891	− 1
1 76	1 06386	−1891	0
77	1 04495	1891	+ 1
78	1 0 605	1890	1
79	1 00716	1888	2
80	0 98830	1885	1
1 81	0 96946	−1883	+ 2
82	0 95065	1879	
83	0 93188	1875	
84	91315	1870	3
85	0 89448	1865	3
1 86	0 87586	−1860	+ 3
87	0 857 9	1854	4
88	0 83879	1846	4
89	0 8 037	1838	4
90	0 80203	1831	4
1 91	0 78376	−1822	+ 6
92	0 7656	181	4
93	0 74752	1803	6
94	0 72955	1792	5
95	71168	1782	6
1 96	0 6939	−1770	+ 7
97	0 67629	1758	5
98	0 65876	1746	7
99	0 64137	1732	7
2 00	0 6241	−1718	+ 7

Appli d C t t + 500

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XII *continued* — Equation of Longitude — Argument A

1	2	3	4
A	Equation	Δ	½ Δ²
d	°		
2·00	0·62412	−1718	+7
·01	0·60701	1705	7
·02	0·59003	1690	9
·03	0·57322	1674	7
·04	0·55655	1659	9
·05	0·54005	1642	8
2·06	0·52371	−1626	+9
·07	0·50754	1608	9
·08	0·49155	1591	9
·09	0·47573	1573	10
·10	0·46010	1554	10
2·11	0·44466	−1535	+10
·12	0·42941	1515	11
·13	0·41437	1494	11
·14	0·39954	1474	10
·15	0·38490	1454	11
2·16	0·37047	−1431	+12
·17	0·35628	1408	11
·18	0·34231	1386	11
·19	0·32856	1364	11
·20	0·31503	1341	13
2·21	0·30175	−1316	+12
·22	0·28871	1292	12
·23	0·27591	1268	13
·24	0·26336	1243	13
·25	0·25106	1217	13
2·26	0·23902	−1192	+13
·27	0·22723	1166	13
·28	0·21570	1139	14
·29	0·20445	1112	13
·30	0·19346	1085	14
2·31	0·18275	−1057	+14
·32	0·17232	1030	13
·33	0·16215	1003	14
·34	0·15226	974	16
·35	0·14268	944	14
2·36	0·13338	−915	+15
·37	0·12438	885	15
·38	0·11568	856	15
·39	0·10727	827	15
·40	0·09915	796	16
2·41	0·09135	−766	+15
·42	0·08384	736	16
·43	0·07664	703	17
·44	0·06978	672	15
·45	0·06321	642	16
2·46	0·05695	−610	+16
·47	0·05101	579	16
·48	0·04538	546	17
·49	0·04009	513	16
2·50	0·03512	−481	+16

1	2	3	4
A	Equation	Δ	½ Δ²
d	°		
2·50	0·03512	−481	+16
·51	0·03047	449	17
·52	0·02615	416	17
·53	0·02216	382	17
·54	0·01851	350	16
·55	0·01517	318	17
2·56	0·01216	−285	+16
·57	0·00947	251	18
·58	0·00714	217	16
·59	0·00513	185	17
·60	0·00345	151	18
2·61	0·00212	−116	+17
·62	0·00113	83	16
·63	0·00046	50	17
·64	0·00013	−17	17
·65	0·00013	+18	18
2·66	0·00048	+53	+18
·67	0·00118	87	17
·68	0·00221	120	17
·69	0·00357	153	17
·70	0·00527	187	17
2·71	0·00730	+221	+18
·72	0·00968	254	16
·73	0·01237	287	18
·74	0·01541	321	17
·75	0·01878	355	18
2·76	0·02250	+388	+16
·77	0·02654	421	17
·78	0·03092	454	16
·79	0·03562	487	17
·80	0·04065	519	16
2·81	0·04600	+552	+17
·82	0·05169	586	17
·83	0·05772	618	15
·84	0·06404	649	17
·85	0·07069	681	16
2·86	0·07765	+712	+16
·87	0·08492	744	17
·88	0·09253	776	15
·89	0·10044	807	16
·90	0·10867	838	15
2·91	0·11719	+868	+16
·92	0·12602	898	15
·93	0·13515	929	16
·94	0·14459	959	15
·95	0·15432	988	15
2·96	0·16435	+1017	+14
·97	0·17466	1046	15
·98	0·18527	1075	14
·99	0·19615	1103	15
3·00	0·20732	+1130	+13

1	2	3	4
A	Equation	Δ	½ Δ²
d	°		
3·00	0·20732	+1130	+13
·01	0·21875	1158	15
·02	0·23048	1186	13
·03	0·24247	1213	14
·04	0·25473	1239	13
·05	0·26725	1266	14
3·06	0·28004	+1291	+12
·07	0·29307	1316	13
·08	0·30635	1340	12
·09	0·31986	1365	14
·10	0·33364	1390	12
3·11	0·34766	+1414	+12
·12	0·36191	1436	11
·13	0·37638	1458	11
·14	0·39107	1481	12
·15	0·40599	1503	11
3·16	0·42112	+1524	+11
·17	0·43646	1545	11
·18	0·45201	1565	10
·19	0·46776	1585	10
·20	0·48371	1605	10
3·21	0·49986	+1624	+9
·22	0·51618	1641	9
·23	0·53268	1659	9
·24	0·54936	1677	9
·25	0·56622	1694	8
3·26	0·58323	+1709	+8
·27	0·60040	1725	8
·28	0·61772	1740	8
·29	0·63520	1755	7
·30	0·65281	1768	7
3·31	0·67055	+1782	+8
·32	0·68844	1796	7
·33	0·70646	1808	6
·34	0·72459	1819	6
·35	0·74284	1829	4
3·36	0·76117	+1839	+6
·37	0·77962	1851	6
·38	0·79818	1860	4
·39	0·81682	1868	4
·40	0·83553	1876	5
3·41	0·85433	+1884	+4
·42	0·87321	1891	3
·43	0·89214	1896	3
·44	0·91113	1902	3
·45	0·93018	1907	2
3·46	0·94927	+1911	+2
·47	0·96840	1916	3
·48	0·98758	1919	1
·49	1·00678	1921	1
3·50	1·02600	+1923	+1

1	2	3	4
A	Equation	Δ	½ Δ²
d	°		
3·50	1·02600	+1923	+1
·51	1·04523	1924	+1
·52	1·06448	1925	0
·53	1·08373	1925	0
·54	1·10298	1924	−1
·55	1·12221	1923	0
3·56	1·14144	+1921	−2
·57	1·16063	1919	1
·58	1·17981	1917	2
·59	1·19896	1913	3
·60	1·21806	1908	3
3·61	1·23711	+1902	−3
·62	1·25610	1897	2
·63	1·27505	1891	4
·64	1·29392	1884	3
·65	1·31273	1877	5
3·66	1·33145	+1869	−4
·67	1·35010	1861	5
·68	1·36866	1851	6
·69	1·38711	1841	4
·70	1·40548	1831	7
3·71	1·42372	+1819	−5
·72	1·44186	1809	6
·73	1·45989	1796	7
·74	1·47778	1783	6
·75	1·49555	1770	8
3·76	1·51317	+1756	−7
·77	1·53066	1742	7
·78	1·54801	1727	9
·79	1·56519	1711	7
·80	1·58223	1695	9
3·81	1·59909	+1678	−9
·82	1·61578	1661	9
·83	1·63230	1644	9
·84	1·64865	1625	10
·85	1·66480	1605	10
3·86	1·68075	+1586	−9
·87	1·69652	1568	10
·88	1·71210	1547	11
·89	1·72746	1525	11
·90	1·74260	1505	10
3·91	1·75755	+1483	−12
·92	1·77226	1461	10
·93	1·78677	1439	13
·94	1·80103	1414	12
·95	1·81505	1391	11
3·96	1·82885	+1369	−12
·97	1·84242	1344	14
·98	1·85572	1318	12
·99	1·86878	1293	13
4·00	1·88158	+1267	−14

Applied Constant: +1°·07500.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XII *continued* **Equation of Longitude** **Argument A**

		3	4
A	Equation	Δ	½ Δ²
4 00	1 88158	+1 67	−14
01	1 89411	1 41	13
02	1 9 639	1 15	13
03	1 91841	1189	14
04	1 93 16	1161	14
05	1 94163	1133	14
4 06	1 95 8	+11 5	−14
07	1 96373	1 78	14
08	97437	1 49	15
09	1 98471	1020	15
10	1 99476	990	15
4 11	00451	+ 96	−14
12	2 01398	93	15
13	0 315	901	16
14	03 00	871	15
15	2 04056	841	16
4 16	04881	+ 810	−16
17	05675	778	16
18	2 06437	747	15
19	2 07169	716	16
20	2 7869	684	16
4 21	2 08537	+ 65	−16
22	09173	6 0	17
23	2 09776	587	16
24	1 347	5 5	16
25	2 10886	5 3	16
4 26	2 11393	+ 491	−17
27	11867	457	17
28	2 12307	424	16
29	1 715	391	18
30	13088	357	17
4 31	13428	+ 324	−17
32	2 13735	91	17
33	14 09	58	17
34	14 50	24	17
35	14457	190	17
4 36	14630	+ 156	−18
37	2 14768	121	17
38	2 14872	88	16
39	14945	56	18
40	14983	+ 1	17
4 41	14987	− 13	−17
42	14958	46	17
43	2 14895	80	16
44	14799	114	18
45	14668	148	17
4 46	14504	181	−17
47	14306	214	16
48	14076	48	18
49	2 13811	281	16
4 50	2 13515	− 313	−17

		3	4
A	Equation	Δ	½ Δ²
4 50	13515	− 313	−17
51	13185	347	17
52	1 8 1	381	17
53	1 4 4	414	17
54	2 11994	446	16
55	2 11532	478	16
4 56	11039	− 510	−17
57	2 10512	544	17
58	09952	575	15
59	2 0936	606	16
60	2 08740	639	17
4 61	08084	− 671	−15
62	2 07398	701	15
63	06(8	731	15
64	05936	76	14
65	05158	794	16
4 66	04349	− 824	−15
67	03511	85	15
68	2 0 643	883	15
69	01745	912	14
70	00819	941	15
4 71	1 99863	− 970	−14
72	1 98879	999	15
73	1 97865	10 8	14
74	1 968 4	1 55	14
75	1 95755	1083	14
4 76	1 94659	−1110	−14
77	1 93536	1137	14
78	1 92385	1164	13
79	1 91 09	1189	13
80	1 90007	1215	13
4 81	1 88779	−1241	−13
82	1 87526	1265	12
83	1 86 49	1 91	14
84	1 84945	1315	11
85	1 83620	1337	12
4 86	1 82271	−1361	−12
87	1 80898	1385	1
88	1 79502	1407	11
89	1 78084	14 9	11
90	1 76645	1450	11
4 91	1 75184	−1472	−11
92	1 73701	1493	10
93	1 72198	1513	10
94	1 70676	153	10
95	1 69134	155	10
4 96	1 6757	−1571	− 9
97	1 65993	1588	9
98	1 64396	1607	10
99	1 62780	16 4	8
5 00	1 61148	−1641	− 9

		3	4
A	Equation	Δ	½ Δ²
d			
5 00	1 61148	−1641	− 9
01	1 59499	1657	8
02	1 57834	1673	8
03	1 56154	1689	9
04	1 54457	1704	7
05	1 52747	1717	7
5 06	1 51023	−1731	− 7
07	1 49286	1745	8
08	1 47534	1757	5
09	1 45772	1769	7
10	1 43997	1781	6
5 11	1 4 211	1791	− 5
12	1 40415	180	6
13	1 38608	1811	4
14	1 36793	18 1	6
15	1 34967	1830	4
5 16	1 33134	−1838	− 5
17	1 31292	1846	4
18	1 29442	1853	3
19	1 27587	1859	4
20	1 25725	1864	2
5 21	1 23859	−1869	− 3
22	1 1987	1875	3
23	1 20110	1879	2
24	1 18229	1883	2
25	1 16345	1886	2
5 26	1 14458	−1888	− 1
27	1 12570	1889	1
28	1 10681	1890	1
29	1 08790	189	− 1
30	1 6898	1891	+ 1
5 31	1 05008	1890	0
32	1 03118	1889	+ 1
33	1 01 30	1888	1
34	0 99343	1885	2
35	0 97460	1882	2
5 36	95580	−1878	+ 2
37	93704	1874	2
38	91832	187	
39	0 89964	1865	4
40	0 88103	1858	3
5 41	0 86248	−1852	+ 4
42	0 84400	1845	3
43	0 8 558	1838	5
44	0 80724	1829	5
45	0 78900	1820	4
5 46	0 77084	−1811	+ 5
47	0 75279	1801	5
48	0 73483	1791	5
49	0 71697	1780	6
5 50	0 69923	−1768	+ 7

		3	4
A	Equation	Δ	½ Δ²
d			
5 50	0 69923	−1768	+ 7
51	6816	1756	6
52	0 6641	1744	7
53	0 64675	1730	7
54	0 6 95	1716	7
55	0 61243	1703	7
5 56	0 59547	−1688	+ 9
57	0 57868	1671	8
58	0 56 05	1656	7
59	0 54556	1640	8
60	0 5 925	1622	10
5 61	0 51313	−1605	+ 9
62	0 49716	1588	10
63	0 48138	156)	9
64	0 46578	1550	10
65	0 45038	1531	9
5 66	0 43516	−1511	+11
67	0 42016	1490	11
68	0 40537	1469	11
69	0 39 79	1448	10
70	0 37641	1427	12
5 71	0 36226	−1404	+12
72	0 34834	1382	11
73	0 33463	1359	13
74	0 3 117	1336	11
75	0 30792	131	14
5 76	0 29494	−1287	+12
77	0 28 19	1262	13
78	0 26970	1 37	13
79	0 5746	1211	13
80	0 4548	1186	13
5 81	0 23375	−1160	+14
82	0 2 229	1133	13
83	0 21109	11 6	15
84	0 20018	1078	14
85	0 18954	1050	14
5 86	0 17918	−1023	+14
87	0 16909	994	16
88	0 15931	964	14
89	0 14981	937	14
90	0 14058	908	16
5 91	0 13166	− 877	+16
92	0 1 304	848	15
93	0 11471	818	16
94	0 10669	787	15
95	0 09897	756	16
5 96	0 09157	− 725	+16
97	0 08448	694	15
98	0 07769	664	16
99	0 07121	632	17
6 00	0 06506	− 599	+16

Appli d C t t + 7500

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XII *continued* — **Equation of Longitude** — **Argument A**

1 A	2 Equation	3 Δ	4 ½ Δ²	1 A	2 Equation	3 Δ	4 ½ Δ²	1 A	2 Equation	3 Δ	4 ½ Δ²	1 A	2 Equation	3 Δ	4 ½ Δ²
d	°			d	°			d	°			d	°		
6·00	0·06506	− 599	+16	**6·50**	0·18060	+1040	+14	**7·00**	0·97665	+1926	+ 2	**7·50**	1·84895	+1319	−12
·01	0·05923	568	16	**·51**	0·19114	1068	14	**·01**	0·99593	1929	1	**·51**	1·86202	1294	14
·02	0·05371	536	17	**·52**	0·20195	1097	16	**·02**	1·01522	1931	2	**·52**	1·87482	1267	13
·03	0·04852	503	17	**·53**	0·21307	1127	15	**·03**	1·03454	1933	1	**·53**	1·88736	1242	13
·04	0·04366	470	17	**·54**	0·22448	1155	14	**·04**	1·05387	1934	+ 1	**·54**	1·89965	1215	15
·05	0·03913	437	16	**·55**	0·23616	1182	14	**·05**	1·07321	1934	− 1	**·55**	1·91165	1187	14
6·06	0·03492	− 404	+17	**6·56**	0·24811	+1208	+13	**7·06**	1·09254	+1934	+ 1	**7·56**	1·92338	+1160	−14
·07	0·03105	371	17	**·57**	0·26032	1236	15	**·07**	1·11188	1933	− 1	**·57**	1·93484	1132	15
·08	0·02751	338	16	**·58**	0·27282	1264	14	**·08**	1·13120	1931	1	**·58**	1·94601	1103	15
·09	0·02429	305	17	**·59**	0·28559	1290	13	**·09**	1·15050	1929	1	**·59**	1·95689	1074	15
·10	0·02141	272	17	**·60**	0·29861	1315	13	**·10**	1·16978	1926	2	**·60**	1·96748	1044	15
6·11	0·01886	− 238	+17	**6·61**	0·31188	+1340	+13	**7·11**	1·18902	+1922	− 2	**7·61**	1·97777	+1015	−14
·12	0·01665	204	17	**·62**	0·32541	1365	12	**·12**	1·20822	1919	2	**·62**	1·98778	986	15
·13	0·01478	171	16	**·63**	0·33918	1390	13	**·13**	1·22739	1914	4	**·63**	1·99749	956	15
·14	0·01323	138	17	**·64**	0·35320	1414	12	**·14**	1·24649	1908	3	**·64**	2·00690	927	15
·15	0·01202	104	18	**·65**	0·36745	1437	12	**·15**	1·26554	1902	4	**·65**	2·01602	895	17
6·16	0·01116	− 69	+18	**6·66**	0·38194	+1461	+12	**7·16**	1·28452	+1895	− 3	**7·66**	2·02480	+ 864	−15
·17	0·01065	35	17	**·67**	0·39666	1484	12	**·17**	1·30344	1888	4	**·67**	2·03329	833	16
·18	0·01047	− 2	17	**·68**	0·41161	1506	11	**·18**	1·32228	1880	4	**·68**	2·04146	802	16
·19	0·01062	+ 33	18	**·69**	0·42678	1527	10	**·19**	1·34104	1872	5	**·69**	2·04932	771	16
·20	0·01113	68	17	**·70**	0·44215	1548	11	**·20**	1·35971	1862	5	**·70**	2·05687	739	16
6·21	0·01197	+ 101	+17	**6·71**	0·45774	+1570	+11	**7·21**	1·37828	+1852	− 5	**7·71**	2·06410	+ 707	−17
·22	0·01315	134	16	**·72**	0·47354	1591	11	**·22**	1·39675	1841	6	**·72**	2·07100	674	16
·23	0·01465	168	18	**·73**	0·48955	1610	9	**·23**	1·41510	1830	6	**·73**	2·07758	642	16
·24	0·01650	203	18	**·74**	0·50574	1628	9	**·24**	1·43334	1819	6	**·74**	2·08384	610	16
·25	0·01870	237	17	**·75**	0·52211	1648	11	**·25**	1·45147	1807	7	**·75**	2·08978	578	17
6·26	0·02124	+ 272	+18	**6·76**	0·53869	+1666	+ 8	**7·26**	1·46947	+1794	− 6	**7·76**	2·09539	+ 545	−17
·27	0·02413	305	16	**·77**	0·55543	1683	9	**·27**	1·48735	1781	8	**·77**	2·10067	511	17
·28	0·02734	337	16	**·78**	0·57235	1700	8	**·28**	1·50508	1766	8	**·78**	2·10561	477	17
·29	0·03087	371	18	**·79**	0·58943	1717	9	**·29**	1·52266	1751	7	**·79**	2·11021	444	17
·30	0·03475	406	17	**·80**	0·60669	1734	8	**·30**	1·54010	1736	8	**·80**	2·11448	412	16
6·31	0·03897	+ 439	+17	**6·81**	0·62410	+1749	+ 8	**7·31**	1·55738	+1720	− 9	**7·81**	2·11844	+ 378	−18
·32	0·04352	471	16	**·82**	0·64166	1764	8	**·32**	1·57449	1703	8	**·82**	2·12204	344	17
·33	0·04839	504	17	**·83**	0·65937	1778	7	**·33**	1·59144	1687	9	**·83**	2·12531	311	16
·34	0·05360	538	17	**·84**	0·67721	1791	7	**·34**	1·60822	1669	9	**·84**	2·12826	277	18
·35	0·05915	572	17	**·85**	0·69518	1803	6	**·35**	1·62482	1651	9	**·85**	2·13085	243	16
6·36	0·06503	+ 604	+16	**6·86**	0·71327	+1816	+ 7	**7·36**	1·64124	+1633	− 9	**7·86**	2·13312	+ 208	−18
·37	0·07122	637	18	**·87**	0·73150	1829	6	**·37**	1·65748	1614	11	**·87**	2·13503	174	17
·38	0·07776	670	16	**·88**	0·74984	1840	6	**·38**	1·67351	1593	11	**·88**	2·13660	141	16
·39	0·08461	700	15	**·89**	0·76829	1850	5	**·39**	1·68933	1573	10	**·89**	2·13785	107	18
·40	0·09176	732	17	**·90**	0·78684	1860	5	**·40**	1·70496	1553	11	**·90**	2·13874	73	16
6·41	0·09925	+ 765	+16	**6·91**	0·80549	+1870	+ 5	**7·41**	1·72038	+1531	−11	**7·91**	2·13931	+ 40	−17
·42	0·10706	797	16	**·92**	0·82424	1878	3	**·42**	1·73559	1510	11	**·92**	2·13954	+ 6	18
·43	0·11519	828	15	**·93**	0·84305	1886	5	**·43**	1·75058	1489	11	**·93**	2·13942	− 29	17
·44	0·12361	858	16	**·94**	0·86196	1894	3	**·44**	1·76536	1465	13	**·94**	2·13896	64	18
·45	0·13235	889	15	**·95**	0·88093	1901	4	**·45**	1·77988	1441	11	**·95**	2·13815	98	17
6·46	0·14139	+ 919	+15	**6·96**	0·89998	+1907	+ 2	**7·46**	1·79418	+1419	−12	**7·96**	2·13701	− 130	−16
·47	0·15073	950	16	**·97**	0·91907	1912	3	**·47**	1·80825	1395	12	**·97**	2·13555	164	18
·48	0·16039	981	15	**·98**	0·93822	1917	2	**·48**	1·82208	1370	14	**·98**	2·13374	198	17
·49	0·17034	1011	16	**·99**	0·95741	1922	3	**·49**	1·83564	1344	13	**·99**	2·13159	232	17
6·50	0·18060	+1040	+14	**7·00**	0·97665	+1926	+ 2	**7·50**	1·84895	+1319	−12	**8·00**	2·12910	− 266	−17

Applied Constant: +1°·07500.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

Equations of Longitude

XIII

		3
B	Equat on	Δ
0 0	0 001c0	+ 6
1	106	5
2	110	3
3	11	+ 1
4	111	−
5	107	6
0 6	0 001	− 9
7	89	1
8	76	14
9	6	14
1 0	47	15
1 1	0 00 34	− 13
2	2	1
3	1	8
4	6	− 4
5	5	+ 1
1 6	0 00007	+ 4
7	13	8
8	3	11
9	36	15
2 0	5	17
2 1	0 00070	+ 19
2	89	19
3	1 9	21
4	128	18
5	146	17
2 6	0 0016	+ 15
7	176	12
8	186	9
9	19	4
3 0	195	+
3 1	0 00194	− 4
2	189	7
3	180	11
4	168	13
5	154	14
3 6	0 0140	− 15
7	1 5	13
8	11	1
9	1	10
4 0	94	6
4 1	0 00089	− 3
2	89	+ 1
3	90	3
4	94	5
5	99	5
4 6	0 00105	+ 5
7	109	4
8	112	+ 1
9	111	−
5 0	0 00108	− 4

Appli 1 C t t + ∞

XIV

		3
C	Equation	Δ 0d 0
0 00	0 001 0	+ 1 5
08	113	1 6
16	126	1 6
24	138	1 5
32	149	1 4
40	160	1 1
0 48	0 00169	+ 1 1
56	177	0 9
64	183	0 8
72	188	0 5
80	191	+ 0 3
0 88	0 00192	0 0
96	191	− 3
1 04	189	0 4
12	184	0 6
20	178	0 9
1 28	0 00171	− 1 0
36	162	1 3
44	152	1 4
52	141	1 4
60	129	1 6
1 68	0 00116	− 1 6
76	103	1 5
84	90	1 6
92	77	1 6
2 00	65	1 5
2 08	0 00053	− 1 4
16	43	1 3
24	33	1 1
32	25	1 0
40	18	0 8
2 48	0 00013	− 0 5
56	10	0 4
64	8	− 0 1
72	8	+ 0 1
80	1	0 4
2 88	0 00014	+ 0 6
96	20	0 8
3 04	7	1 0
12	36	1 3
20	46	1 3
3 28	0 0005,	+ 1 5
36	69	1 5
44	81	1 5
52	94	1 6
60	107	1 6
3 68	0 00120	+ 1 6
76	13	1 5
84	144	1 5
92	155	1 3
4 00	0 00165	+ 1 3

Apl d C t t +

XV

		3			3
D	Lquat on	Δ 0 01	**D**	Fquation	Δ 0d 01
0 00	0 01 00	+ 17 0	**2 00**	0 00636	− 15 5
04	1067	16 5	**04**	576	14 8
08	1133	16 5	**08**	517	14 3
12	1199	16 5	**12**	460	14 0
16	1264	16 0	**16**	407	13 0
20	1327	15 5	**20**	357	1 3
0 24	0 01389	⊦ 15 5	**2 24**	0 00309	− 11 3
28	1449	14 5	**28**	65	10 5
32	1507	14 3	**32**	25	9 5
36	1562	13 3	**36**	189	8 8
40	1614	1 8	**40**	157	7 5
0 44	0 01663	+ 12 0	**2 44**	0 001 9	− 6 5
48	1709	11 0	**48**	105	5 3
52	1751	10 0	**52**	86	4 3
56	1790	9 3	**56**	71	3 0
60	1825	8 3	**60**	61	2 0
0 64	0 01855	+ 7 0	**2 64**	0 00056	− 0 8
68	1882	6 0	**68**	55	+ 0 5
72	1903	5 0	**72**	60	1 5
76	1921	3 8	**76**	68	3 0
80	1933	2 5	**80**	82	3 5
0 84	0 0194	+ 1 5	**2 84**	0 00100	+ 5 3
88	1945	+ 3	**88**	1 3	6 3
92	19 3	− 1 0	**92**	150	7 3
96	1937	2 0	**96**	181	8 3
1 00	1927	3 5	**3 00**	217	9 5
1 04	0 01911	− 4 3	**3 04**	0 00256	+ 10 3
08	1891	5 5	**08**	299	11 3
12	1867	6 8	**12**	345	12 0
16	1838	7 8	**16**	395	12 8
20	1805	8 8	**20**	448	13 5
1 24	0 01768	− 9 8	**3 24**	0 00503	+ 14 3
28	17 7	10 8	**28**	562	15 0
32	1683	11 5	**32**	622	15 3
36	1635	12 3	**36**	684	15 8
40	1583	13 3	**40**	748	16 0
1 44	0 01530	13 8	**3 44**	0 00813	+ 16 5
48	1473	14 5	**48**	879	16 5
52	1414	15 0	**52**	945	16 8
56	1353	15 5	**56**	101	16 5
60	1 90	16	**60**	1079	16 8
1 64	0 01226	− 16 3	**3 64**	01145	+ 16 5
68	1160	16 5	**68**	1 11	16 3
72	1094	16 8	**72**	1275	16 0
76	1027	16 8	**76**	1338	15 5
80	96	16 8	**80**	1400	15 3
1 84	0 00894	− 16 5	**3 84**	0 01459	+ 14 5
88	8 8	16 5	**88**	1517	14 0
92	763	16	**92**	1571	13 5
96	699	16 0	**96**	1623	12 5
2 00	0 00636	− 15 5	**4 00**	0 0167	+ 11 5

Appli d C t t +

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XVI Equations of Longitude

1	2	3	4	1	2	3	4
E	Equation	Δ 0d·01	$\frac{1}{2}\Delta^2$	E	Equation	Δ 0d·01	$\frac{1}{2}\Delta^2$
d	°			d	°		
0·00	0·03600	+62,4	−0,0	2·00	0·02236	−57,5	+0,2
·04	3849	62,2	0,0	·04	2011	55,7	0,3
·08	4098	61,8	0,1	·08	1792	53,5	0,3
·12	4343	61,0	0,1	·12	1583	51,1	0,3
·16	4585	59,9	0,2	·16	1384	48,5	0,4
·20	4822	58,5	0,2	·20	1195	45,6	0,4
0·24	0·05053	+56,9	−0,2	2·24	0·01019	−42,5	+0,4
·28	5277	54,9	0,3	·28	856	39,2	0,4
·32	5492	52,7	0,3	·32	706	35,7	0,5
·36	5698	50,2	0,3	·36	571	31,9	0,5
·40	5893	47,4	0,4	·40	451	28,1	0,5
0·44	0·06077	+44,3	−0,4	2·44	0·00347	−24,0	+0,5
·48	6248	41,2	0,4	·48	259	19,9	0,5
·52	6406	37,8	0,4	·52	188	15,7	0,5
·56	6550	34,2	0,5	·56	133	11,4	0,6
·60	6679	30,4	0,5	·60	97	7,0	0,6
0·64	0·06793	+26,7	−0,5	2·64	0·00078	− 2,6	+0,6
·68	6890	22,4	0,5	·68	76	+ 1,8	0,6
·72	6971	18,8	0,5	·72	91	6,2	0,6
·76	7036	14,0	0,5	·76	125	10,6	0,6
·80	7083	9,7	0,6	·80	176	14,9	0,5
0·84	0·07113	+ 5,3	−0,6	2·84	0·00244	+19,2	+0,5
·88	7125	+ 0,9	0,6	·88	329	23,3	0,5
·92	7120	− 3,6	0,6	·92	430	27,4	0,5
·96	7097	7,9	0,5	·96	548	31,3	0,5
1·00	7057	12,3	0,6	3·00	680	35,0	0,5
1·04	0·06999	−16,6	−0,5	3·04	0·00827	+38,6	+0,4
·08	6924	20,8	0,5	·08	988	41,9	0,4
·12	6832	24,9	0,5	·12	1162	45,1	0,4
·16	6725	28,9	0,5	·16	1348	48,0	0,4
·20	6601	32,8	0,5	·20	1546	50,7	0,3
1·24	0·06463	−36,4	−0,5	3·24	0·01754	+53,1	+0,3
·28	6310	39,9	0,4	·28	1971	55,3	0,3
·32	6144	43,2	0,4	·32	2196	57,2	0,2
·36	5966	46,2	0,4	·36	2428	58,8	0,2
·40	5775	49,1	0,4	·40	2666	60,2	0,2
1·44	0·05574	−51,7	−0,3	3·44	0·02909	+61,2	+0,1
·48	5362	54,1	0,3	·48	3156	61,9	+0,1
·52	5142	56,1	0,3	·52	3404	62,3	0,0
·56	4913	57,9	0,2	·56	3654	62,4	0,0
·60	4679	59,4	0,2	·60	3903	62,2	−0,1
1·64	0·04439	−60,6	−0,1	3·64	0·04151	+61,4	−0,1
·68	4195	61,5	0,1	·68	4396	60,8	0,1
·72	3947	62,1	−0,1	·72	4637	59,6	0,2
·76	3698	62,4	0,0	·76	4872	58,2	0,2
·80	3448	62,4	0,0	·80	5102	56,4	0,2
1·84	0·03199	−62,0	+0,1	3·84	0·05323	+54,4	−0,3
·88	2953	61,4	0,1	·88	5537	52,2	0,3
·92	2709	60,4	0,1	·92	5740	49,6	0,3
·96	2470	59,1	0,2	·96	5933	46,8	0,4
2·00	0·02236	−57,5	+0,2	4·00	0·06113	+43,8	−0,4

Applied Constant: +0°·03600.

XVII

1	2	3	1	2	3
F	Equation	Δ 0d·01	F	Equation	Δ 0d·01
d	°		d	°	
0·00	0·01500	+26,2	2·00	0·00926	−24,2
·04	1605	26,2	·04	831	23,4
·08	1709	26,0	·08	739	22,5
·12	1813	25,7	·12	651	21,5
·16	1914	25,2	·16	567	20,4
·20	2014	24,6	·20	488	19,2
0·24	0·02111	+23,9	2·24	0·00414	−17,9
·28	2205	23,1	·28	345	16,5
·32	2296	22,2	·32	282	15,0
·36	2383	21,1	·36	225	13,4
·40	2465	20,0	·40	176	11,8
0·44	0·02542	+18,7	2·44	0·00132	−10,1
·48	2614	17,4	·48	95	8,4
·52	2682	15,9	·52	65	6,6
·56	2742	14,4	·56	42	4,8
·60	2796	12,8	·60	27	2,9
0·64	0·02844	+11,1	2·64	0·00019	− 1,1
·68	2884	9,4	·68	18	+ 0,8
·72	2919	7,7	·72	24	2,4
·76	2944	5,9	·76	38	4,5
·80	2964	4,1	·80	60	6,3
0·84	0·02977	+ 2,2	2·84	0·00088	+ 8,1
·88	2982	+ 0,4	·88	124	9,8
·92	2980	− 1,5	·92	167	11,5
·96	2970	3,4	·96	216	13,2
1·00	2953	5,2	3·00	272	14,7
1·04	0·02930	− 7,0	3·04	0·00334	+16,2
·08	2898	8,8	·08	401	17,8
·12	2860	10,5	·12	475	19,0
·16	2815	12,2	·16	554	20,2
·20	2763	13,8	·20	637	21,3
1·24	0·02705	−15,3	3·24	0·00724	+22,4
·28	2640	16,8	·28	816	23,3
·32	2570	18,2	·32	910	24,1
·36	2494	19,5	·36	1008	24,8
·40	2414	20,7	·40	1108	25,3
1·44	0·02329	−21,8	3·44	0·01210	+25,8
·48	2240	22,7	·48	1314	26,1
·52	2147	23,6	·52	1418	26,2
·56	2051	24,4	·56	1524	26,3
·60	1952	25,0	·60	1628	26,2
1·64	0·01851	−25,5	3·64	0·01733	+25,9
·68	1748	25,9	·68	1836	25,6
·72	1646	26,1	·72	1937	25,1
·76	1541	26,2	·76	2035	24,5
·80	1436	26,2	·80	2132	23,8
1·84	0·01331	−26,1	3·84	0·02225	+22,9
·88	1228	25,8	·88	2315	21,9
·92	1125	25,4	·92	2400	20,9
·96	1025	24,9	·96	2482	19,7
2·00	0·00926	−24,2	4·00	1·02558	+18,4

Applied Constant: +0°·01500.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XVIII Equations of Longitude XIX

XVIII

G	Equation	3 Δ	G	Equation	3 Δ 1
0	0 01 00	+17 8	250	0 00403	−1 8
5	1289	17 8	255	341	11 8
10	1378	17 6	260	85	10 7
15	1466	17 4	265	35	9 5
20	1551	17	270	19	8 3
25	1635	16 5	275	152	7 1
30	0 01716	+15 9	280	0 001 0	− 5 7
35	1794	15 3	285	94	4 4
40	1868	14 5	290	76	3 0
45	1939	13 6	295	64	1 7
50	20 4	1 7	300	60	− 0
55	0 02 65	+11 6	305	0 0062	+ 1
60	1	10 5	310	71	2 5
65	170	9 4	315	87	4 0
70	2215	8 2	320	110	5 3
75	225	6 9	325	140	6 6
80	0 0 284	+ 5 6	330	0 00176	+ 7 9
85	23 8	4 3	335	219	9 1
90	3 6	9	340	267	10 3
95	2337	1 5	345	321	11 4
100	341	+ 0 1	350	381	12 4
105	0 02339	− 1 3	355	0 00445	+13 4
110	328	2 7	360	514	14 3
115	311	4 1	365	588	15 1
120	88	5 4	370	665	15 8
125	2257	6 8	375	745	16 4
130	0 222	− 8 0	380	0 008 8	+16 9
135	177	9 3	385	914	17 3
140	2127	10 4	390	1001	17 6
145	73	11 5	395	1089	17 8
150	013	12 6	400	1179	17 9
155	0 01948	−13 5	405	0 01 68	+17 8
160	1878	14 4	410	1357	17 7
165	1804	15	415	1446	17 4
170	17 6	15 9	420	153	17 1
175	1646	16 5	425	1616	16 6
180	0 0156	−16 9	430	0 01697	+16 1
185	1476	17 3	435	1776	15 4
190	1389	17 7	440	1851	14 7
195	130	17 8	445	19 3	13 8
200	1211	17 9	450	1990	1 9
205	0 011 1	−17 8	455	0 0 052	+11 9
210	103	17 7	460	2108	10 8
215	944	17 4	465	160	9 7
220	859	17 0	470	205	8 5
225	774	16 6	475	2244	7
230	0 00693	−16 0	480	0 02277	+ 5 9
235	615	15 3	485	2303	4 6
240	540	14 6	490	23	3 2
245	469	13 7	495	2334	1 8
250	0 00403	−12 8	500	0 2340	+ 0 4

Appl d C tant + 00

XIX

H	Equation	3 Δ 1d	H	Equation	3 Δ 1d
d 0	0 00800	+10 5	250	0 00581	−10 1
5	853	10 5	255	531	9 9
10	905	10 4	260	483	9 6
15	957	10 3	265	435	9 3
20	10 8	1 1	270	39	8 9
25	1058	9 9	275	347	8 5
30	0 01106	+ 9 6	280	0 00306	− 8
35	1154	9 3	285	266	7 6
40	1199	9 0	290	230	7 0
45	1243	8 6	295	196	6 5
50	1285	8 1	300	166	5 9
55	0 01325	+ 7 7	305	0 00138	− 5 3
60	1361	7 2	310	113	4 6
65	1396	6 6	315	9	4 0
70	1427	6 0	320	74	3 3
75	1456	5 4	325	59	2 6
80	0 01481	+ 4 8	330	0 00048	− 1 9
85	1504	4 2	335	40	1 2
90	15	3 5	340	36	− 0 5
95	1538	8	345	35	+ 0 3
100	1550	2 1	350	38	1 0
105	0 01559	+ 1 4	355	0 00045	+ 1 7
110	1564	+ 7	360	55	2 4
115	1565	− 0 1	365	69	3 1
120	1563	0 8	370	86	3 8
125	1557	1 5	375	106	4 5
130	0 01548	− 2 2	380	0 00130	+ 5 1
135	1535	3 0	385	157	5 7
140	1518	3 6	390	187	6 3
145	1499	4 3	395	220	6 9
150	1476	4 9	400	256	7 4
155	0 01450	− 5 6	405	0 00294	+ 7 9
160	1421	6 2	410	334	8 3
165	1388	6 7	415	377	8 8
170	1353	7 3	420	422	9 1
175	1316	7 8	425	468	9 5
180	0 01276	− 8	430	0 00516	+ 9 8
185	1234	8 7	435	566	10 0
190	1189	9 0	440	616	10 2
195	1143	9 4	445	668	10 4
200	1095	9 7	450	720	10 5
205	0 01046	−10 0	455	0 00772	+10 5
210	996	10 2	460	8 5	10 5
215	945	10 3	465	878	10 5
220	893	10 4	470	929	10 3
225	841	10 5	475	980	10 2
230	0 00788	−10 5	480	0 01031	+10 0
235	735	1 5	485	1081	9 8
240	683	10 4	490	11 9	9 5
245	631	10 3	495	1175	9 2
250	0 00581	−1 1	500	0 01 20	+ 8 8

Appli d C t t + 800

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XX — Equations of Longitude

1	2	3	4	1	2	3	4
I	Equation	Δ 1^d	$\frac{1}{2}\Delta^2$	**I**	Equation	Δ 1^d	$\frac{1}{2}\Delta^2$
d	°			d	°		
0	0·04500	−58,0	,00	**250**	0·05013	+57,7	−,05
5	4210	57,9	+,03	**255**	5300	57,1	,07
10	3921	57,6	,05	**260**	5583	56,4	,09
15	3635	57,0	,08	**265**	5863	55,3	,12
20	3352	56,1	,10	**270**	6136	54,0	,14
25	3074	55,0	,13	**275**	6401	52,5	,16
30	0·02802	−53,7	+,15	**280**	0·06659	+50,8	−,18
35	2538	52,2	,17	**285**	6908	48,9	,21
40	2282	50,4	,19	**290**	7147	46,7	,23
45	2036	48,4	,21	**295**	7375	44,4	,25
50	1799	46,2	,23	**300**	7590	41,8	,26
55	0·01573	−43,8	+,25	**305**	0·07792	+39,2	−,28
60	1362	41,2	,27	**310**	7981	36,2	,30
65	1162	38,5	,29	**315**	8154	33,2	,31
70	978	35,5	,31	**320**	8312	30,0	,32
75	808	32,4	,31	**325**	8454	26,8	,33
80	0·00653	−29,3	+,32	**330**	0·08579	+23,4	−,35
85	516	26,0	,34	**335**	8687	19,8	,36
90	394	22,5	,35	**340**	8778	16,2	,36
95	291	19,0	,36	**345**	8850	12,6	,37
100	204	15,4	,37	**350**	8904	8,8	,38
105	0·00137	−11,7	+,37	**355**	0·08938	+ 5,1	−,38
110	88	8,0	,37	**360**	8954	+ 1,3	,38
115	58	4,3	,38	**365**	8950	− 2,5	,38
120	45	− 0,4	,39	**370**	8929	6,2	,38
125	53	+ 3,4	,38	**375**	8888	10,0	,38
130	0·00079	+ 7,1	+,38	**380**	0·08829	−13,7	−,37
135	124	10,9	,37	**385**	8752	17,3	,36
140	187	14,5	,37	**390**	8656	20,9	,36
145	269	18,2	,36	**395**	8543	24,4	,35
150	368	21,7	,35	**400**	8413	27,8	,33
155	0·00486	+25,2	+,34	**405**	0·08265	−31,0	−,32
160	620	28,5	,33	**410**	8103	34,2	,31
165	771	31,8	,32	**415**	7925	37,1	,29
170	937	34,9	,30	**420**	7732	40,0	,28
175	1119	37,8	,29	**425**	7525	42,6	,26
180	0·01315	+40,6	+,27	**430**	0·07306	−45,1	−,24
185	1525	43,2	,25	**435**	7075	47,4	,22
190	1746	45,6	,24	**440**	6833	49,5	,20
195	1980	47,9	,22	**445**	6581	51,3	,18
200	2225	49,9	,19	**450**	6320	53,0	,16
205	0·02479	+51,7	+,17	**455**	0·06052	−54,5	−,13
210	2741	53,4	,15	**460**	5776	55,6	,11
215	3011	54,7	,12	**465**	5495	56,6	,09
220	3288	55,8	,10	**470**	5211	57,3	,06
225	3570	56,8	,08	**475**	4923	57,8	,04
230	0·03855	+57,4	+,06	**480**	0·04633	−58,1	−,01
235	4143	57,9	,04	**485**	4343	58,0	+,02
240	4433	58,1	+,01	**490**	4053	57,8	,04
245	4723	58,0	−,02	**495**	3766	57,3	,07
250	0·05013	+57,7	−,05	**500**	0·03482	−56,5	+,09

Applied Constant: +0°·04500.

XXI

1	2	3	1	2	3
J	Equation	Δ 1^d	**J**	Equation	Δ 1^d
d	°		d	d	
0	0·01800	−23,3	**250**	0·01968	+23,2
5	1684	23,2	**255**	2083	23,0
10	1568	23,1	**260**	2197	22,7
15	1454	22,8	**265**	2309	22,3
20	1340	22,5	**270**	2420	21,8
25	1229	22,1	**275**	2527	21,3
30	0·01120	−21,5	**280**	0·02632	+20,6
35	1013	20,9	**285**	2734	19,9
40	910	20,2	**290**	2831	19,1
45	811	19,4	**295**	2924	18,2
50	716	18,6	**300**	3012	17,2
55	0·00625	−17,6	**305**	0·03095	+16,1
60	540	16,6	**310**	3173	15,0
65	460	15,5	**315**	3246	13,8
70	385	14,4	**320**	3312	12,6
75	316	13,2	**325**	3371	11,3
80	0·00254	−11,9	**330**	0·03424	+10,0
85	197	10,6	**335**	3470	8,6
90	148	9,2	**340**	3511	7,2
95	106	7,8	**345**	3543	5,7
100	70	6,4	**350**	3568	4,3
105	0·00042	− 4,9	**355**	0·03586	+ 2,8
110	21	3,4	**360**	3596	+ 1,3
115	8	2,0	**365**	3598	− 0,3
120	2	− 0,4	**370**	3593	1,8
125	4	+ 1,1	**375**	3581	3,3
130	0·00013	+ 2,6	**380**	0·03561	− 4,7
135	30	4,1	**385**	3534	6,2
140	54	5,6	**390**	3499	7,6
145	85	7,0	**395**	3457	9,0
150	124	8,4	**400**	3409	10,4
155	0·00170	+ 9,8	**405**	0·03353	−11,7
160	222	11,2	**410**	3292	13,0
165	281	12,5	**415**	3224	14,2
170	346	13,7	**420**	3150	15,4
175	418	14,9	**425**	3071	16,5
180	0·00494	+16,0	**430**	0·02986	−17,5
185	577	17,1	**435**	2896	18,5
190	665	18,1	**440**	2801	19,3
195	757	19,0	**445**	2701	20,1
200	854	19,8	**450**	2599	20,8
205	0·00955	+20,6	**455**	0·02494	−21,5
210	1060	21,2	**460**	2385	22,0
215	1167	21,8	**465**	2274	22,5
220	1277	22,3	**470**	2161	22,8
225	1390	22,7	**475**	2046	23,1
230	0·01504	+22,9	**480**	0·01930	−23,2
235	1619	23,2	**485**	1814	23,3
240	1735	23,3	**490**	1698	23,2
245	1852	23,3	**495**	1582	23,1
250	0·01968	+23,2	**500**	0·01467	−22,9

Applied Constant: +0°·01800.

SATELLITE II
Tables of Longitude, Latitude, and Radius Vector
Equations of Longitude

XXII

K	Equation
d	
0 00	0 00040
04	44
08	49
12	53
16	57
20	6
0 24	0 00063
28	66
32	68
36	70
40	71
0 44	0 00071
48	71
52	70
56	68
60	66
0 64	0 00064
68	61
72	57
76	53
80	49
0 84	0 00045
88	40
92	36
96	32
1 00	8
1 04	0 00024
08	20
12	17
16	14
20	12
1 24	0 00010
28	9
32	9
36	9
40	1
1 44	0 00011
48	13
52	16
56	19
60	2
1 64	0 00026
68	30
72	35
76	39
80	43
1 84	0 00048
88	52
92	56
96	59
2 00	0 00063

C t t + 0004

XXIII

L	Equation
0 0	0 0003
1	5
2	
3	16
4	1
5	9
0 6	0 00006
7	4
8	3
9	3
1 0	4
1 1	00006
2	8
3	11
4	15
5	19
1 6	0 00023
7	28
8	33
9	37
2 0	4
2 1	0 00046
2	50
3	53
4	55
5	56
2 6	0 00057
7	57
8	56
9	54
3 0	51
3 1	0 00048
2	44
3	39
4	35
5	30
3 6	0 00025
7	20
8	16
9	12
4 0	9
4 1	0 00006
2	4
3	3
4	3
5	4
4 6	0 00006
7	8
8	11
9	15
5 0	0 00019

C t t + 000

XXIV

M	Equation	3 Δ
d		
0 0	0 00 00	+ 35
1	35	35
2	27	34
3	30	31
4	331	7
5	356	22
0 6	0 00375	+ 17
7	389	11
8	397	+ 5
9	399	− 2
1 0	394	8
1 1	0 00383	− 14
2	366	0
3	344	5
4	317	28
5	87	3
1 6	0 00253	− 35
7	218	36
8	182	36
9	147	34
2 0	114	32
2 1	0 00083	− 29
2	56	25
3	34	20
4	17	14
5	6	8
2 6	0 00001	− 2
7	3	+ 5
8	11	11
9	4	17
3 0	44	23
3 1	0 00069	+ 7
2	98	31
3	130	33
4	164	35
5	00	36
3 6	0 00236	+ 35
7	7	33
8	3	31
9	331	27
4 0	356	22
4 1	0 00375	+ 17
2	389	11
3	397	+ 5
4	399	− 2
5	394	8
4 6	0 00383	− 14
7	366	0
8	344	5
9	317	28
5 0	0 00287	− 32

Appli d C t t + 00 00

5

XXV

N	Equation
0 0	0 00090
1	105
2	119
3	13
4	145
5	155
0 6	0 00163
7	169
8	172
9	173
1 0	171
1 1	0 00166
2	159
3	150
4	139
5	126
1 6	0 00112
7	97
8	83
9	68
2 0	54
2 1	0 00041
2	30
3	21
4	14
5	10
2 6	0 000 7
7	8
8	12
9	18
3 0	25
3 1	0 00036
2	47
3	61
4	75
5	90
3 6	0 00105
7	119
8	133
9	145
4 0	155
4 1	0 00163
2	169
3	172
4	173
5	171
4 6	0 00166
7	159
8	150
9	139
5 0	0 00126

C t t + 0009

XXVI

O	Equation
d	
0 0	0 00040
1	46
2	52
3	57
4	6
5	66
0 6	00 70
7	72
8	74
9	74
1 0	74
1 1	0 00072
2	69
3	66
4	62
5	57
1 6	0 00051
7	46
8	39
9	33
2 0	8
2 1	0 00023
2	18
3	14
4	10
5	8
2 6	0 0006
7	6
8	7
9	8
3 0	11
3 1	0 00014
2	19
3	24
4	29
5	35
3 6	0 00041
7	47
8	53
9	58
4 0	63
4 1	0 00067
2	70
3	72
4	74
5	74
4 6	0 00073
7	71
8	68
9	65
5 0	0 00061

C t t + 000

4

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XXVII Equation of Longitude Argument P

1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
P	Equation	Δ $0^y{\cdot}1$	**P**	Equation	Δ $0^y{\cdot}1$	**P**	Equation	Δ $0^y{\cdot}1$	**P**	Equation	Δ $0^y{\cdot}1$	**P**	Equation	Δ $0^y{\cdot}1$
	°			°			°			°			°	
1850·0	0·01505	+66	**1860·0**	0·02852	+15	**1870·0**	0·01310	−73	**1880·0**	0·02354	−39	**1890·0**	0·04885	0
·2	1636	66	**·2**	2887	20	**·2**	1171	66	**·2**	2274	42	**·2**	4877	− 9
·4	1769	67	**·4**	2932	24	**·4**	1046	59	**·4**	2188	43	**·4**	4850	17
·6	1903	67	**·6**	2982	25	**·6**	937	52	**·6**	2101	44	**·6**	4811	23
·8	2037	67	**·8**	3032	27	**·8**	838	45	**·8**	2012	44	**·8**	4758	32
1851·0	0·02172	+68	**1861·0**	0·03088	+29	**1871·0**	0·00757	−36	**1881·0**	0·01927	−41	**1891·0**	0·04683	−41
·2	2308	69	**·2**	3146	30	**·2**	693	27	**·2**	1847	39	**·2**	4594	50
·4	2446	69	**·4**	3206	32	**·4**	646	20	**·4**	1771	36	**·4**	4484	58
·6	2584	69	**·6**	3274	35	**·6**	614	13	**·6**	1703	32	**·6**	4364	62
·8	2721	68	**·8**	3346	35	**·8**	600	− 4	**·8**	1643	27	**·8**	4236	68
1852·0	0·02857	+68	**1862·0**	0·03411	+32	**1872·0**	0·00599	+ 2	**1882·0**	0·01598	−19	**1892·0**	0·04095	−74
·2	2992	67	**·2**	3475	32	**·2**	606	7	**·2**	1567	11	**·2**	3943	78
·4	3126	67	**·4**	3537	31	**·4**	628	13	**·4**	1554	− 4	**·4**	3784	80
·6	3259	66	**·6**	3597	30	**·6**	656	16	**·6**	1551	+ 1	**·6**	3625	81
·8	3389	63	**·8**	3656	29	**·8**	691	21	**·8**	1557	8	**·8**	3462	82
1853·0	0·03513	+61	**1863·0**	0·03712	+28	**1873·0**	0·00738	+25	**1883·0**	0·01583	+17	**1893·0**	0·03299	−80
·2	3632	57	**·2**	3767	27	**·2**	791	28	**·2**	1624	24	**·2**	3142	77
·4	3741	53	**·4**	3820	27	**·4**	849	30	**·4**	1680	31	**·4**	2990	75
·6	3843	50	**·6**	3872	25	**·6**	909	31	**·6**	1746	36	**·6**	2842	72
·8	3939	45	**·8**	3920	24	**·8**	974	34	**·8**	1820	41	**·8**	2703	66
1854·0	0·04021	+38	**1864·0**	0·03969	+24	**1874·0**	0·01044	+36	**1884·0**	0·01910	+47	**1894·0**	0·02580	−59
·2	4090	31	**·2**	4015	21	**·2**	1116	37	**·2**	2007	51	**·2**	2469	53
·4	4144	24	**·4**	4052	17	**·4**	1193	38	**·4**	2113	55	**·4**	2370	47
·6	4184	18	**·6**	4085	16	**·6**	1269	39	**·6**	2228	58	**·6**	2280	44
·8	4214	11	**·8**	4115	13	**·8**	1350	41	**·8**	2344	59	**·8**	2198	36
1855·0	0·04227	+ 2	**1865·0**	0·04137	+10	**1875·0**	0·01431	+41	**1885·0**	0·02464	+61	**1895·0**	0·02135	−28
·2	4223	− 6	**·2**	4153	+ 5	**·2**	1513	42	**·2**	2586	62	**·2**	2084	20
·4	4202	15	**·4**	4156	0	**·4**	1597	43	**·4**	2713	63	**·4**	2051	15
·6	4166	21	**·6**	4153	− 2	**·6**	1683	44	**·6**	2838	63	**·6**	2026	12
·8	4118	28	**·8**	4143	10	**·8**	1773	45	**·8**	2963	63	**·8**	2008	6
1856·0	0·04055	−34	**1866·0**	0·04116	−16	**1876·0**	0·01865	+46	**1886·0**	0·03090	+63	**1896·0**	0·02002	− 2
·2	3982	40	**·2**	4075	25	**·2**	1954	45	**·2**	3215	63	**·2**	2002	+ 1
·4	3895	45	**·4**	4017	32	**·4**	2042	44	**·4**	3340	62	**·4**	2008	6
·6	3802	47	**·6**	3950	37	**·6**	2130	43	**·6**	3462	61	**·6**	2024	10
·8	3706	49	**·8**	3870	45	**·8**	2215	42	**·8**	3583	60	**·8**	2044	10
1857·0	0·03606	−51	**1867·0**	0·03773	−52	**1877·0**	0·02296	+39	**1887·0**	0·03703	+59	**1897·0**	0·02066	+11
·2	3502	52	**·2**	3662	61	**·2**	2369	35	**·2**	3819	57	**·2**	2089	13
·4	3398	51	**·4**	3529	69	**·4**	2436	32	**·4**	3932	56	**·4**	2116	15
·6	3300	49	**·6**	3388	73	**·6**	2498	29	**·6**	4044	55	**·6**	2147	15
·8	3203	46	**·8**	3238	79	**·8**	2552	24	**·8**	4152	54	**·8**	2175	14
1858·0	0·03117	−41	**1868·0**	0·03075	−84	**1878·0**	0·02595	+20	**1888·0**	0·04259	+52	**1898·0**	0·02204	+15
·2	3045	33	**·2**	2903	88	**·2**	2625	12	**·2**	4362	50	**·2**	2235	16
·4	2985	29	**·4**	2721	91	**·4**	2641	5	**·4**	4458	46	**·4**	2266	16
·6	2926	29	**·6**	2538	93	**·6**	2648	+ 2	**·6**	4546	43	**·6**	2298	16
·8	2871	25	**·8**	2349	94	**·8**	2647	− 5	**·8**	4630	39	**·8**	2328	15
1859·0	0·02835	−14	**1869·0**	0·02161	−93	**1879·0**	0·02628	−13	**1889·0**	0·04702	+34	**1899·0**	0·02360	+15
·2	2814	8	**·2**	1978	91	**·2**	2595	20	**·2**	4764	28	**·2**	2390	16
·4	2803	− 1	**·4**	1799	88	**·4**	2547	25	**·4**	4816	23	**·4**	2422	16
·6	2809	+ 6	**·6**	1626	84	**·6**	2494	29	**·6**	4857	16	**·6**	2452	15
·8	2827	11	**·8**	1462	79	**·8**	2430	35	**·8**	4878	+ 7	**·8**	2483	15
1860·0	0·02852	+15	**1870·0**	0·01310	−73	**1880·0**	0·02354	−39	**1890·0**	0·04885	0	**1900·0**	0·02512	+14

Applied Constant: +0°·02600.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XXVII *continued* — Equation of Longitude — Argument P

P	Equation	3 Δ o	P	Equation	3 Δ o ɪ	P	Equation	3 Δ	P	Equation	3 Δ o	P	Equation	3 Δ o' ɪ
1900 0	0251	+14	**1910 0**	0 01455	+64	**1920 0**	0 02801	+3	**1930 0**	0 00816	−51	**1940 0**	0 01546	−46
2	2539	13	**2**	1584	65	**2**	769	35	**2**	7 2	4	**2**	1454	45
4	56	10	**4**	1714	65	**4**	284	37	**4**	649	34	**4**	1365	43
6	579	8	**6**	1845	66	**6**	2917	38	**6**	586	8	**6**	1 8	40
8	594	6	**8**	1978	66	**8**	992	37	**8**	536	1	**8**	1 4	36
1901 0	0 0 6 4	+	**1911 0**	0 02110	+67	**1921 0**	0 03065	+38	**1931 0**	0 005	−13	**1941 0**	0 1138	−30
2	2604	−	**2**	45	67	**2**	3141	37	**2**	486	6	**2**	1 84	3
4	596	6	**4**	2376	66	**4**	3216	36	**4**	479	− 1	**4**	1046	16
6	2579	11	**6**	509	66	**6**	3287	36	**6**	483	+ 4	**6**	1019	11
8	55	18	**8**	640	65	**8**	3359	35	**8**	495	9	**8**	1002	− 5
1902 0	0 0 507	5	**1912 0**	0 02768	+63	**1922 0**	03430	+35	**1932 0**	0 00519	+14	**1942 0**	0 01001	+ 4
2	45	30	**2**	893	61	**2**	3500	34	**2**	55	19	**2**	1018	13
4	387	35	**4**	3013	59	**4**	3564	3	**4**	593	21	**4**	1052	20
6	2311	43	**6**	31 7	56	**6**	36 9	3	**6**	639	24	**6**	1099	6
8	17	5	**8**	3 38	53	**8**	3690	30	**8**	689	26	**8**	1156	32
1903 0	0 112	55	**1913 0**	0 03339	+48	**1923 0**	0 03747	+29	**1933 0**	0 00743	+ 8	**1943 0**	0 01230	+40
2	1998	61	**2**	3430	41	**2**	3807	8	**2**	801	30	**2**	1316	46
4	1869	65	**4**	3503	35	**4**	3860	25	**4**	862	31	**4**	1415	50
6	1738	68	**6**	3569	31	**6**	3908	3	**6**	9 4	31	**6**	1517	53
8	1599	7	**8**	3626	24	**8**	3952	1	**8**	986	33	**8**	1627	57
1904 0	0 01451	−73	**1914 0**	0 03664	+15	**1924 0**	0 03992	+18	**1934 0**	0 01055	+35	**1944 0**	0 01745	+61
2	13 5	74	**2**	3686	+ 6	**2**	4 25	15	**2**	11 7	36	**2**	1869	63
4	1154	75	**4**	3689	1	**4**	4051	11	**4**	1 00	37	**4**	1998	65
6	10 5	73	**6**	368	5	**6**	4070	8	**6**	1 74	37	**6**	2130	65
8	861	7	**8**	3665	13	**8**	4081	+	**8**	1349	38	**8**	2259	66
1905 0	0 0 726	−66	**1915 0**	0 03630	−21	**1925 0**	0 04078	− 4	**1935 0**	0 01424	+38	**1945 0**	02393	+67
2	599	61	**2**	3582	9	**2**	4065	11	**2**	1501	39	**2**	2526	66
4	483	55	**4**	3516	34	**4**	4034	18	**4**	1578	39	**4**	658	66
6	379	50	**6**	3447	37	**6**	399	23	**6**	1656	39	**6**	790	67
8	84	4	**8**	3367	43	**8**	3938	31	**8**	1733	38	**8**	2925	66
1906 0	0 00 10	−34	**1916 0**	0 03275	−48	**1926 0**	0 03871	−39	**1936 0**	0 01807	+37	**1946 0**	0 03054	+65
2	150	25	**2**	3180	48	**2**	3786	49	**2**	1879	36	**2**	3184	64
4	112	16	**4**	3084	48	**4**	3679	56	**4**	1950	34	**4**	3309	63
6	87	− 9	**6**	990	47	**6**	3561	61	**6**	2015	31	**6**	3437	64
8	77	0	**8**	2897	46	**8**	3433	68	**8**	073	27	**8**	3563	62
1907 0	00086	+ 7	**1917 0**	0 807	−43	**1927 0**	0 03289	−75	**1937 0**	0 02122	+21	**1947 0**	0 03684	+60
2	106	15	**2**	272	40	**2**	3133	80	**2**	2158	16	**2**	38 2	58
4	146	24	**4**	2648	35	**4**	968	86	**4**	2184	11	**4**	3916	56
6	200	9	**6**	582	31	**6**	790	92	**6**	200	+ 7	**6**	4026	54
8	26	34	**8**	5 6	5	**8**	2607	93	**8**	210	0	**8**	4133	52
1908 0	0 00337	+41	**1918 0**	0 02483	18	**1928 0**	0 024 0	−95	**1938 0**	0 02201	− 7	**1948 0**	0 04232	+47
2	4 5	46	**2**	454	11	**2**	22 9	95	**2**	2181	14	**2**	4321	41
4	5 0	49	**4**	441	− 4	**4**	041	94	**4**	2146	20	**4**	4397	36
6	6 0	52	**6**	437	0	**6**	1855	9	**6**	2101	26	**6**	4466	34
8	7 7	55	**8**	443	+ 7	**8**	1673	89	**8**	04	31	**8**	4530	28
1909 0	0 0 840	+58	**1919 0**	0 02463	+13	**1929 0**	0 015 1	−84	**1939 0**	0 01978	−36	**1949 0**	0 04579	+19
2	959	6	**2**	493	18	**2**	1339	77	**2**	1900	40	**2**	4610	10
4	1 78	61	**4**	2535	23	**4**	1192	71	**4**	1818	42	**4**	4620	+ 2
6	1 01	6	**6**	583	26	**6**	105	67	**6**	1730	45	**6**	4619	− 3
8	13 6	63	**8**	639	9	**8**	924	59	**8**	1639	46	**8**	4608	11
1910 0	0 01455	+64	**1920 0**	0 02801	+3	**1930 0**	0 00816	−51	**1940 0**	0 01546	−46	**1950 0**	0 04575	−21

Appli d O ta t + 6

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XXVII *continued* — **Equation of Longitude** — **Argument P**

1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
P	Equation	Δ 0y·1	**P**	Equation	Δ 0y·1	**P**	Equation	Δ 0y·1	**P**	Equation	Δ 0y·1	**P**	Equation	Δ 0y·1
	°			°			°			°			°	
1950·0	0·04575	−21	**1960·0**	0·02849	+ 8	**1970·0**	0·01941	+65	**1980·0**	0·03232	+43	**1990·0**	0·01183	−25
·2	4524	29	**·2**	2862	+ 5	**·2**	2070	65	**·2**	3320	44	**·2**	1140	17
·4	4458	38	**·4**	2867	0	**·4**	2199	66	**·4**	3409	44	**·4**	1114	10
·6	4374	44	**·6**	2862	− 4	**·6**	2332	66	**·6**	3496	43	**·6**	1099	− 6
·8	4279	52	**·8**	2851	9	**·8**	2462	64	**·8**	3581	42	**·8**	1092	0
1951·0	0·04167	−59	**1961·0**	0·02826	−16	**1971·0**	0·02589	+64	**1981·0**	0·03665	+42	**1991·0**	0·01099	+ 6
·2	4046	63	**·2**	2789	22	**·2**	2718	64	**·2**	3749	41	**·2**	1114	11
·4	3914	68	**·4**	2739	27	**·4**	2843	62	**·4**	3828	39	**·4**	1142	15
·6	3775	71	**·6**	2681	33	**·6**	2965	61	**·6**	3905	39	**·6**	1174	17
·8	3631	73	**·8**	2607	40	**·8**	3087	58	**·8**	3982	38	**·8**	1210	19
1952·0	0·03483	−74	**1962·0**	0·02520	−47	**1972·0**	0·03197	+53	**1982·0**	0·04058	+37	**1992·0**	0·01250	+23
·2	3335	74	**·2**	2418	55	**·2**	3301	50	**·2**	4129	35	**·2**	1301	26
·4	3188	72	**·4**	2299	61	**·4**	3397	45	**·4**	4197	33	**·4**	1355	26
·6	3047	70	**·6**	2176	63	**·6**	3482	41	**·6**	4262	32	**·6**	1406	26
·8	2908	67	**·8**	2049	67	**·8**	3559	35	**·8**	4324	30	**·8**	1462	28
1953·0	0·02778	−62	**1963·0**	0·01908	−73	**1973·0**	0·03621	+27	**1983·0**	0·04383	+28	**1993·0**	0·01518	+30
·2	2662	56	**·2**	1759	75	**·2**	3669	19	**·2**	4436	25	**·2**	1582	32
·4	2554	51	**·4**	1607	76	**·4**	3697	12	**·4**	4482	22	**·4**	1645	32
·6	2459	45	**·6**	1455	77	**·6**	3717	7	**·6**	4522	19	**·6**	1709	32
·8	2373	40	**·8**	1299	76	**·8**	3725	+ 1	**·8**	4556	14	**·8**	1774	33
1954·0	0·02302	−34	**1964·0**	0·01148	−74	**1974·0**	0·03720	− 9	**1984·0**	0·04579	+ 9	**1994·0**	0·01840	+35
·2	2241	25	**·2**	1001	71	**·2**	3692	17	**·2**	4593	+ 3	**·2**	1915	37
·4	2200	18	**·4**	863	67	**·4**	3652	22	**·4**	4591	− 3	**·4**	1986	36
·6	2170	14	**·6**	735	62	**·6**	3604	27	**·6**	4580	10	**·6**	2057	35
·8	2148	9	**·8**	614	56	**·8**	3546	33	**·8**	4553	16	**·8**	2125	35
1955·0	0·02135	− 5	**1965·0**	0·00511	−49	**1975·0**	0·03474	−38	**1985·0**	0·04516	−23	**1995·0**	0·02197	+36
·2	2130	− 1	**·2**	420	41	**·2**	3396	41	**·2**	4461	33	**·2**	2268	34
·4	2132	+ 4	**·4**	348	33	**·4**	3309	44	**·4**	4386	40	**·4**	2333	32
·6	2146	10	**·6**	290	26	**·6**	3222	44	**·6**	4300	46	**·6**	2396	31
·8	2171	14	**·8**	246	17	**·8**	3133	45	**·8**	4202	54	**·8**	2456	28
1956·0	0·02200	+14	**1966·0**	0·00222	− 8	**1976·0**	0·03044	−43	**1986·0**	0·04086	−62	**1996·0**	0·02508	+24
·2	2228	15	**·2**	213	+ 1	**·2**	2961	40	**·2**	3955	70	**·2**	2553	20
·4	2260	17	**·4**	226	9	**·4**	2884	37	**·4**	3807	76	**·4**	2589	15
·6	2294	17	**·6**	249	15	**·6**	2812	34	**·6**	3651	80	**·6**	2613	11
·8	2328	18	**·8**	284	21	**·8**	2748	29	**·8**	3487	85	**·8**	2633	+ 6
1957·0	0·02365	+18	**1967·0**	0·00335	+28	**1977·0**	0·02696	−24	**1987·0**	0·03314	−89	**1997·0**	0·02638	− 1
·2	2399	18	**·2**	396	35	**·2**	2652	18	**·2**	3133	92	**·2**	2630	8
·4	2436	18	**·4**	473	40	**·4**	2626	10	**·4**	2948	92	**·4**	2606	15
·6	2473	19	**·6**	556	43	**·6**	2612	− 5	**·6**	2765	92	**·6**	2573	19
·8	2510	18	**·8**	646	48	**·8**	2606	+ 1	**·8**	2581	91	**·8**	2532	25
1958·0	0·02545	+17	**1968·0**	0·00747	+51	**1978·0**	0·02618	+ 8	**1988·0**	0·02400	−90	**1998·0**	0·02474	−32
·2	2578	17	**·2**	851	54	**·2**	2641	16	**·2**	2223	86	**·2**	2406	37
·4	2614	18	**·4**	962	56	**·4**	2680	21	**·4**	2058	80	**·4**	2326	41
·6	2651	18	**·6**	1076	58	**·6**	2724	24	**·6**	1902	76	**·6**	2242	44
·8	2686	17	**·8**	1194	59	**·8**	2777	29	**·8**	1753	71	**·8**	2150	46
1959·0	0·02721	+16	**1969·0**	0·01314	+61	**1979·0**	0·02839	+32	**1989·0**	0·01621	−62	**1999·0**	0·02058	−48
·2	2752	15	**·2**	1437	61	**·2**	2906	36	**·2**	1505	54	**·2**	1958	49
·4	2781	15	**·4**	1558	62	**·4**	2982	39	**·4**	1406	47	**·4**	1863	47
·6	2810	13	**·6**	1683	64	**·6**	3062	41	**·6**	1318	41	**·6**	1771	47
·8	2832	10	**·8**	1812	65	**·8**	3147	43	**·8**	1241	34	**·8**	1677	46
1960·0	0·02849	+ 8	**1970·0**	0·01941	+65	**1980·0**	0·03232	+43	**1990·0**	0·01183	−25	**2000·0**	0·01589	−44

Applied Constant: +0°·02600.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XXVIII **Equation of Longitude** **Argument Q**

Q	Equation	Δ	$\frac{1}{2}\Delta^2$
0 00	0 04400	−147	0
01	4253	147	0
02	4106	147	0
03	3959	147	0
04	3813	146	0
05	3668	145	0
0 06	0 03524	−144	0
07	3380	143	+1
08	3238	141	1
09	3098	140	1
10	959	138	1
0 11	28	−136	+1
12	687	134	1
13	554	13	1
14	4 3	130	2
15	295	127	1
0 16	0 02169	−1 5	+
17	046	12	
18	19 6	118	2
19	1810	115	1
20	1696	11	
0 21	1586	−109	+
22	1479	105	3
23	1377	101	1
24	1 77	98	3
25	1182	93	
0 26	0 01091	− 89	+2
27	1004	85	2
28	9 1	81	3
29	843	76	2
30	769	7	2
0 31	0 00699	− 68	+3
32	634	63	3
33	574	58	3
34	519	53	2
35	468	48	3
0 36	0 0423	− 43	+
37	38	38	3
38	347	33	
39	316	8	3
40	291	3	3
0 41	0 0 71	− 18	+3
42	256	13	3
43	246	8	3
44	41	− 2	3
45	24	+ 4	3
0 46	0 00 48	+ 9	+3
47	259	14	3
48	75	19	3
49	296	24	3
0 50	0 003 3	+ 29	+2

Q	Equation	Δ	$\frac{1}{2}\Delta^2$
0 50	00323	+ 29	+
51	354	34	3
52	391	4	3
53	433	44	
54	479	49	3
55	531	54	2
0 56	0 00587	+ 59	+3
57	648	64	3
58	714	69	3
59	785	73	2
60	860	77	
0 61	0 00939	+ 82	+3
62	10 3	86	
63	1111	90	
64	1 03	94	
65	1 99	98	
0 66	0 01399	+102	+2
67	1503	106	2
68	1610	109	2
69	1721	113	2
70	1835	116	2
0 71	0 01953	+119	+1
72	073	122	2
73	2197	125	1
74	23 3	128	
75	2452	130	1
0 76	0 0 583	+13	+1
77	2716	135	2
78	852	137	1
79	2989	139	
80	3129	141	1
0 81	0 3270	+142	+1
82	341	143	1
83	3555	144	+1
84	3700	145	0
85	3845	146	+1
0 86	0 03992	+147	−1
87	4138	147	+1
88	4 85	147	0
89	443	148	+1
90	4580	147	−1
0 91	0 04726	+147	+1
92	4873	147	−1
93	5 19	146	1
94	5164	145	1
95	5308	144	1
0 96	0 05451	+143	−1
97	5593	141	1
98	5733	140	1
99	5872	138	
1 00	0 060 8	+136	−1

Q	Equation	Δ	$\frac{1}{2}\Delta^2$
1 00	0 06 8	+136	−1
01	6143	134	2
02	6 75	132	1
03	6406	129	
04	6533	126	1
05	6658	124	2
1 06	0 06780	+121	−1
07	6900	118	2
08	7016	115	2
09	7129	111	2
10	7238	108	
1 11	0 07344	+104	−2
12	7446	100	2
13	7544	96	
14	7638	93	2
15	7729	89	3
1 16	0 07815	+ 84	−2
17	7897	80	3
18	7974	75	2
19	8047	71	2
20	8116	66	3
1 21	0 8179	+ 61	−2
22	8238	57	2
23	8293	52	3
24	8342	48	3
25	8386	4	3
1 26	0 08426	+ 37	−3
27	8460	3	2
28	8490	27	3
29	8514	21	4
30	8533	16	2
1 31	0 08547	+ 12	−3
32	8556	6	3
33	8559	+ 1	3
34	8557	− 5	3
35	8550	10	3
1 36	0 08538	15	−3
37	85 1	20	3
38	8498	25	
39	8471	30	3
40	8438	35	2
1 41	0 08401	− 40	−3
42	8358	46	3
43	8310	51	3
44	8257	55	
45	8 00	60	3
1 46	0 08138	− 65	−3
47	8071	70	3
48	7999	74	
49	79 3	78	
1 50	0 07843	− 83	−3

Q	Equation	Δ	$\frac{1}{2}\Delta$
1 50	0 07843	− 83	−3
51	7758	87	2
52	7669	91	
53	7576	95	2
54	7479	99	
55	7378	103	
1 56	0 07274	−106	−
57	7166	110	2
58	7054	114	2
59	6939	117	2
60	6821	120	
1 61	0 06700	−123	−2
62	6576	126	2
63	6449	1 8	1
64	6320	131	2
65	6188	133	1
1 66	0 06054	−135	−1
67	5918	137	1
68	5780	139	1
69	5640	141	1
70	5499	142	1
1 71	0 05357	−143	−1
72	5213	145	1
73	5068	146	1
74	4922	146	0
75	4776	147	−1
1 76	0 04629	−147	0
77	448	147	0
78	4335	147	0
79	4188	147	0
80	4041	147	+1
1 81	0 03895	−146	0
82	3749	146	+1
83	3604	145	1
84	3460	143	+1
85	3318	14	0
1 86	0 03176	141	+1
87	3036	139	1
88	2898	137	1
89	2762	135	1
90	2628	133	1
1 91	0 02496	−131	+1
92	2366	129	2
93	239	126	1
94	114	123	2
95	1993	120	2
1 96	0 01874	−117	+2
97	1759	114	2
98	1647	111	2
99	1538	107	3
2 00	0 01434	−102	+2

Appli d C t t ⊦ 4400

Tables of Longitude, Latitude, and Radius Vector

XXVIII *continued* — Equation of Longitude — Argument Q

1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Q	Equation	Δ	½ Δ²	**Q**	Equation	Δ	½ Δ²	**Q**	Equation	Δ	½ Δ²	**Q**	Equation	Δ	½ Δ²
d	°			d	°			d	°			d	°		
2·00	0·01434	−103	+2	**2·50**	0·02127	+124	+2	**3·00**	0·08263	+55	−2	**3·50**	0·05149	−146	−1
·01	1333	100	2	**·51**	2252	126	1	**·01**	8315	50	3	**·51**	5004	146	0
·02	1234	96	2	**·52**	2380	130	2	**·02**	8363	46	3	**·52**	4858	147	0
·03	1141	91	2	**·53**	2509	131	1	**·03**	8404	40	3	**·53**	4711	147	0
·04	1053	87	2	**·54**	2641	133	1	**·04**	8442	35	3	**·54**	4564	147	0
·05	967	83	2	**·55**	2776	137	2	**·05**	8474	30	2	**·55**	4417	147	0
2·06	0·00886	−79	+2	**2·56**	0·02912	+138	+1	**3·06**	0·08501	+24	−3	**3·56**	0·04270	−147	0
·07	810	74	2	**·57**	3051	141	2	**·07**	8522	18	4	**·57**	4123	147	0
·08	738	70	2	**·58**	3191	142	1	**·08**	8540	14	2	**·58**	3976	146	+1
·09	669	66	2	**·59**	3333	143	1	**·09**	8552	9	3	**·59**	3831	146	0
·10	607	61	2	**·60**	3475	144	1	**·10**	8558	+3	3	**·60**	3685	145	+1
2·11	0·00549	−56	+2	**2·61**	0·03619	+145	+1	**3·11**	0·08559	−2	−3	**3·61**	0·03540	−144	+1
·12	496	51	2	**·62**	3764	145	0	**·12**	8554	8	3	**·62**	3397	142	+1
·13	447	46	2	**·63**	3909	147	−1	**·13**	8545	13	3	**·63**	3255	142	0
·14	404	41	2	**·64**	4057	146	+1	**·14**	8531	18	3	**·64**	3114	140	+1
·15	366	36	2	**·65**	4203	147	0	**·15**	8512	23	3	**·65**	2975	138	1
2·16	0·00333	−31	+2	**2·66**	0·04350	+147	+1	**3·16**	0·08487	−27	−2	**3·66**	0·02838	−136	+1
·17	304	26	2	**·67**	4497	148	0	**·17**	8457	32	3	**·67**	2702	134	1
·18	281	21	3	**·68**	4645	147	0	**·18**	8422	37	2	**·68**	2569	132	1
·19	264	16	3	**·69**	4791	147	0	**·19**	8383	43	3	**·69**	2438	130	1
·20	251	11	3	**·70**	4938	147	0	**·20**	8337	49	3	**·70**	2309	127	2
2·21	0·00243	−6	+3	**2·71**	0·05083	+146	−1	**3·21**	0·08287	−54	−3	**3·71**	0·02183	−125	+1
·22	240	0	3	**·72**	5228	144	1	**·22**	8232	57	2	**·72**	2060	121	2
·23	244	+6	3	**·73**	5372	143	1	**·23**	8173	63	3	**·73**	1941	118	2
·24	252	11	3	**·74**	5514	142	1	**·24**	8109	68	3	**·74**	1823	115	2
·25	266	16	3	**·75**	5655	140	1	**·25**	8040	73	3	**·75**	1709	112	2
2·26	0·00284	+21	+3	**2·76**	0·05795	+139	−1	**3·26**	0·07966	−76	−2	**3·76**	0·01598	−109	+2
·27	307	26	3	**·77**	5932	136	2	**·27**	7888	80	2	**·77**	1491	104	3
·28	336	31	3	**·78**	6068	135	1	**·28**	7806	86	3	**·78**	1389	100	2
·29	369	36	3	**·79**	6202	132	1	**·29**	7719	89	2	**·79**	1289	97	2
·30	409	42	3	**·80**	6333	131	2	**·30**	7628	93	2	**·80**	1193	93	2
2·31	0·00453	+46	+2	**2·81**	0·06462	+127	−1	**3·31**	0·07534	−97	−2	**3·81**	0·01102	−89	+2
·32	501	51	3	**·82**	6589	125	2	**·32**	7435	101	2	**·82**	1014	85	2
·33	555	56	2	**·83**	6712	122	1	**·33**	7332	105	2	**·83**	931	81	2
·34	613	61	3	**·84**	6833	120	2	**·34**	7227	108	2	**·84**	852	76	2
·35	677	66	3	**·85**	6952	116	1	**·35**	7117	112	2	**·85**	777	72	2
2·36	0·00745	+71	+3	**2·86**	0·07066	+113	−2	**3·36**	0·07003	−116	−2	**3·86**	0·00707	−68	+3
·37	818	75	2	**·87**	7178	109	2	**·37**	6887	119	2	**·87**	642	63	3
·38	894	79	2	**·88**	7285	106	2	**·38**	6768	121	2	**·88**	581	58	3
·39	976	84	3	**·89**	7389	102	2	**·39**	6645	124	2	**·89**	525	53	2
·40	1061	88	2	**·90**	7490	98	2	**·40**	6520	127	2	**·90**	474	48	3
2·41	0·01151	+92	+2	**2·91**	0·07586	+94	−2	**3·41**	0·06393	−129	−1	**3·91**	0·00428	−43	+2
·42	1245	96	2	**·92**	7679	91	2	**·42**	6262	132	2	**·92**	387	38	3
·43	1343	100	2	**·93**	7768	87	2	**·43**	6129	134	1	**·93**	351	33	2
·44	1444	104	2	**·94**	7852	82	2	**·44**	5994	136	1	**·94**	319	28	3
·45	1550	108	2	**·95**	7932	78	3	**·45**	5858	138	1	**·95**	294	23	3
2·46	0·01659	+111	+2	**2·96**	0·08007	+73	−2	**3·46**	0·05719	−140	−1	**3·96**	0·00273	−18	+3
·47	1771	115	2	**·97**	8078	69	2	**·47**	5578	142	1	**·97**	258	13	3
·48	1887	118	2	**·98**	8145	64	2	**·48**	5436	143	1	**·98**	247	8	3
·49	2006	120	1	**·99**	8205	59	2	**·49**	5294	144	1	**·99**	241	−2	3
2·50	0·02127	+124	+2	**3·00**	0·08263	+55	−2	**3·50**	0·05149	−146	−1	**4·00**	0·00242	+4	+3

Added Constant: +0°·04400.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

Equations of Longitude

XXIX

R	Equation	3 Δ 0d 01	R	Equation	3 Δ 0 1
0 00	0 01300	− 45	1 00	01791	+ 41
02	1210	45	02	1871	4
04	1121	44	04	1949	38
06	1034	44	06	024	37
08	948	43	08	2095	35
10	862	4	10	163	33
0 12	0 00779	− 41	1 12	0 0 6	+ 30
14	699	39	14	2285	8
16	62	38	16	338	6
18	547	36	18	2387	3
20	477	34	20	430	20
0 22	0 00411	− 32	1 22	0 02467	+ 17
24	350	30	24	499	14
26	93	27	26	524	11
28	241	4	28	544	8
30	195	2	30	2557	5
0 32	0 00154	− 19	1 32	0 0 563	+ 2
34	119	16	34	564	− 1
36	90	13	36	2559	5
38	67	10	38	546	8
40	50	7	40	5 7	11
0 42	0 00039	4	1 42	0 0 503	− 14
44	35	− 1	44	47	17
46	37	+	46	436	19
48	45	6	48	394	2
50	60	9	50	346	5
0 52	0 00081	+ 1	1 52	0 02 93	− 28
54	108	14	54	2235	30
56	141	18	56	173	32
58	180	21	58	2106	34
60	24	4	60	035	36
0 62	0 00274	+ 26	1 62	0 1960	− 38
64	329	29	64	188	40
66	388	31	66	1801	41
68	45	33	68	1718	42
70	5 1	36	70	1633	43
0 72	0 00593	+ 37	1 72	0 01546	− 44
74	669	39	74	1457	44
76	748	40	76	1368	45
78	830	4	78	1 78	45
80	914	43	80	1189	45
0 82	0 01001	+ 44	1 82	0 01100	− 44
84	1 88	44	84	101	44
86	1176	45	86	9 6	43
88	1 66	45	88	84	4
90	1356	45	90	76	41
0 92	01445	+ 45	1 92	0 00680	− 39
94	1534	44	94	6 3	37
96	1621	43	96	530	36
98	1707	42	98	461	34
1 00	0 01791	+ 41	2 00	00397	− 31

Appli d C t t + 3

XXX

S	Equation
0 00	0 00080
04	71
08	62
12	53
16	44
20	36
0 24	0 0003
28	24
32	19
36	16
40	14
0 44	0 00013
48	14
52	15
56	18
60	22
0 64	0 00028
68	35
72	4
76	50
80	59
0 84	0 00069
88	78
92	88
96	97
1 00	106
1 04	0 00115
08	12
12	129
16	135
20	140
1 24	0 00144
28	146
32	147
36	147
40	146
1 44	0 00143
48	139
52	133
56	1 6
60	119
1 64	0 00111
68	103
72	93
76	83
80	74
1 84	0 00065
88	56
92	47
96	39
2 00	0 0003

C t t + 0008

XXXI

T	Equation
d 0 0	0 00020
1	14
2	10
3	6
4	4
5	4
0 6	0 00006
7	10
8	15
9	21
1 0	26
1 1	0 00031
2	34
3	36
4	36
5	34
1 6	0 00029
7	24
8	19
9	13
2 0	0 00009

C t t + 00

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XXXII — **Equation of Longitude** — **Argument U**

1	2	3	1	2	3	1	2	3	1	2	3
U	Equation	Δ $0^d{\cdot}01$	**U**	Equation	Δ $0^d{\cdot}01$	**U**	Equation	Δ $0^d{\cdot}01$	**U**	Equation	Δ $0^d{\cdot}01$
d	°		d	°		d	°		d	°	
0·00	0·00100	− 3,5	**1·00**	0·00137	+ 3,1	**2·00**	0·00031	− 2,5	**3·00**	0·00190	+ 1,3
·04	86	3,4	**·04**	149	2,9	**·04**	22	2,0	**·04**	194	0,8
·08	73	3,3	**·08**	160	2,6	**·08**	15	1,6	**·08**	196	+ 0,4
·12	60	3,1	**·12**	170	2,4	**·12**	9	1,3	**·12**	197	− 0,1
·16	48	2,8	**·16**	179	2,0	**·16**	5	0,6	**·16**	195	0,8
·20	38	2,5	**·20**	186	1,5	**·20**	4	− 0,1	**·20**	191	1,1
0·24	0·00028	− 2,3	**1·24**	0·00191	+ 1,0	**2·24**	0·00004	+ 0,3	**3·24**	0·00186	− 1,5
·28	20	1,9	**·28**	194	0,6	**·28**	6	0,6	**·28**	179	2,0
·32	13	1,5	**·32**	196	+ 0,3	**·32**	9	1,3	**·32**	170	2,4
·36	8	1,0	**·36**	196	− 0,4	**·36**	16	1,8	**·36**	160	2,6
·40	5	− 0,5	**·40**	193	0,9	**·40**	23	2,0	**·40**	149	3,0
0·44	0·00004	0,0	**1·44**	0·00189	− 1,3	**2·44**	0·00032	+ 2,4	**3·44**	0·00136	− 3,1
·48	5	+ 0,4	**·48**	183	1,8	**·48**	42	2,6	**·48**	124	3,3
·52	7	0,9	**·52**	175	2,1	**·52**	53	3,0	**·52**	110	3,5
·56	12	1,4	**·56**	166	2,4	**·56**	66	3,3	**·56**	96	3,5
·60	18	1,8	**·60**	156	2,8	**·60**	79	3,3	**·60**	82	3,4
0·64	0·00026	+ 2,3	**1·64**	0·00144	− 3,0	**2·64**	0·00093	+ 3,5	**3·64**	0·00070	− 3,1
·68	36	2,5	**·68**	132	3,1	**·68**	107	3,3	**·68**	57	3,0
·72	46	2,8	**·72**	119	3,4	**·72**	119	3,1	**·72**	46	2,8
·76	58	3,1	**·76**	105	3,5	**·76**	132	3,2	**·76**	35	2,6
·80	71	3,3	**·80**	91	3,4	**·80**	145	3,0	**·80**	25	2,1
0·84	0·00084	+ 3,4	**1·84**	0·00078	− 3,3	**2·84**	0·00156	+ 2,8	**3·84**	0·00018	− 1,8
·88	98	3,4	**·88**	65	3,1	**·88**	167	2,5	**·88**	11	1,4
·92	111	3,3	**·92**	53	2,9	**·92**	176	2,1	**·92**	7	0,9
·96	124	3,3	**·96**	42	2,8	**·96**	184	1,8	**·96**	4	− 0,4
1·00	0·00137	+ 3,1	**2·00**	0·00031	− 2,5	**3·00**	0·00190	+ 1,3	**4·00**	0·00004	+ 0,4

Applied Constant: +0°·00100.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XXXIII Equation of Variation of Radius Vector, Doubled Argument A

		3			3			3			3
A	Equation	Δ 0^d 01	A	Equation	Δ 0^d 0	A	Equation	Δ 0^d 01	A	Equation	Δ 0^d 01
			d						d		
0 00	− 0201	0	1 00	+ 00298	+ 33	2 00	+ 01587	− 14	3 00	− 01244	− 27
02	2011	+ 1	02	363	33	02	1558	15	02	1297	26
04	2007	3	04	428	32	04	1527	16	04	1349	26
06	2001	4	06	49	32	06	1494	17	06	1400	25
08	1993	5	08	555	31	08	1458	18	08	1448	24
10	1981	6	10	617	31	10	1421	19	10	1495	23
0 12	− 01970	+ 7	1 12	+ 00679	+ 31	2 12	+ 01383	− 20	3 12	− 01541	− 22
14	1953	9	14	740	30	14	134	21	14	1584	1
16	1934	10	16	799	29	16	1299	2	16	1626	21
18	1914	11	18	857	29	18	1 54	23	18	1666	19
20	1891	1	20	913	28	20	1208	24	20	1703	18
0 22	− 01866	+ 13	1 22	+ 00969	+ 28	2 22	+ 01160	− 25	3 22	− 01739	− 18
24	1838	14	24	1023	7	24	1110	25	24	1773	17
26	1809	15	26	1075	26	26	1059	26	26	1805	15
28	1777	17	28	11 6	5	28	1006	27	28	1834	14
30	1743	18	30	1176	25	30	952	28	30	186	13
0 32	− 01707	+ 19	1 32	+ 01224	+ 24	2 32	+ 00896	− 28	3 32	− 01887	− 12
34	1669	20	34	1270	23	34	839	29	34	1910	11
36	1629	21	36	1314		36	781	29	36	1931	10
38	1587	22	38	1356	21	38	7	30	38	1949	9
40	1543	3	40	1396	20	40	66	30	40	1965	8
0 42	− 01497	+ 24	1 42	+ 01435	+ 19	2 42	+ 00601	− 31	3 42	− 01979	− 6
44	1449	24	44	147	18	44	539	31	44	1990	5
46	1400	5	46	1506	17	46	476	3	46	1999	4
48	1349	6	48	1539	16	48	41	32	48	2006	3
50	1 96	7	50	1569	15	50	347	33	50	2010	− 2
0 52	− 0124	+ 27	1 52	+ 01597	+ 14	2 52	+ 00282	− 33	3 52	− 02012	0
54	1188	8	54	1623	12	54	217	33	54	2011	+ 1
56	1131	29	56	1647	11	56	151	33	56	20 8	2
58	1073	29	58	1669	10	58	84	33	58	2003	3
60	1014	30	60	1688	9	60	+ 18	33	60	1995	5
0 62	− 0953	+ 31	1 62	+ 01705	+ 8	2 62	− 00049	− 34	3 62	− 01985	+ 6
64	89	31	64	17 0	7	64	116	34	64	1973	7
66	830	32	66	1733	6	66	183	34	66	1958	8
68	766	3	68	174	4	68	250	34	68	1941	9
70	702	3	70	1750	3	70	317	33	70	1921	10
0 72	− 0 637	+ 33	1 72	+ 01756	+ 2	2 72	− 00383	− 33	3 72	− 01900	+ 11
74	57	33	74	1759	+ 1	74	449	33	74	1876	13
76	506	33	76	1760	0	76	515	33	76	1850	14
78	440	34	78	1758	− 2	78	580	33	78	1821	15
80	373	34	80	1754	3	80	645	32	80	1791	16
0 82	− 00306	+ 34	1 82	+ 01748	− 4	2 82	− 00709	− 32	3 82	− 01758	+ 17
84	38	34	84	1739	5	84	772	32	84	1723	18
86	171	34	86	1729	6	86	835	31	86	1687	19
88	103	34	88	1715	7	88	897	31	88	1648	20
90	− 35	34	90	1700	8	90	958	30	90	1607	21
0 92	+ 0003	+ 34	1 92	+ 0168	− 10	2 92	− 01017	− 30	3 92	− 01565	+ 22
94	99	33	94	1662	11	94	1076	29	94	15 0	23
96	165	33	96	1639	12	96	1133	28	96	1474	24
98	23	33	98	1614	13	98	1189	28	98	14 6	24
1 00	+ 00298	+ 33	2 00	+ 01587	− 14	3 00	− 01244	− 27	4 00	− 01377	+ 25

Appll d C t t oo
Th Eq ti f thi T bl m t b ppl m ted by th f T bl XXXIV XXXV XXXVI

Tables of Longitude, Latitude, and Radius Vector

XXXIII *continued* Equation of Variation of Radius Vector, Doubled Argument A

1	2	3	1	2	3	1	2	3	1	2	3
A	Equation	Δ $0^d{\cdot}01$	**A**	Equation	Δ $0^d{\cdot}01$	**A**	Equation	Δ $0^d{\cdot}01$	**A**	Equation	Δ $0^d{\cdot}01$
d			d			d			d		
4·00	−·01377	+ 25	**5·00**	+·01509	+ 17	**6·00**	+·00463	− 32	**7·00**	−·02004	− 3
·02	1326	26	**·02**	1542	16	**·02**	399	32	**·02**	2009	2
·04	1273	27	**·04**	1571	14	**·04**	334	33	**·04**	2012	− 1
·06	1219	28	**·06**	1599	14	**·06**	268	33	**·06**	2012	+ 1
·08	1163	28	**·08**	1626	13	**·08**	202	33	**·08**	2010	2
·10	1107	28	**·10**	1649	11	**·10**	135	34	**·10**	2005	3
4·12	−·01050	+ 29	**5·12**	+·01671	+ 10	**6·12**	+·00068	− 34	**7·12**	−·01998	+ 4
·14	991	30	**·14**	1690	9	**·14**	+ 1	34	**·14**	1988	6
·16	930	31	**·16**	1707	8	**·16**	− 66	34	**·16**	1975	7
·18	869	31	**·18**	1721	7	**·18**	134	34	**·18**	1960	8
·20	807	31	**·20**	1734	6	**·20**	201	34	**·20**	1944	9
4·22	−·00744	+ 32	**5·22**	+·01743	+ 4	**6·22**	−·00268	− 34	**7·22**	−·01924	+ 10
·24	680	32	**·24**	1751	4	**·24**	336	34	**·24**	1903	11
·26	616	32	**·26**	1757	2	**·26**	403	34	**·26**	1880	13
·28	551	33	**·28**	1760	+ 1	**·28**	470	33	**·28**	1853	14
·30	485	33	**·30**	1760	− 1	**·30**	536	33	**·30**	1825	15
4·32	−·00419	+ 33	**5·32**	+·01758	− 2	**6·32**	−·00602	− 33	**7·32**	−·01794	+ 16
·34	353	33	**·34**	1754	3	**·34**	667	32	**·34**	1761	17
·36	286	34	**·36**	1748	4	**·36**	731	32	**·36**	1727	18
·38	219	34	**·38**	1739	5	**·38**	795	32	**·38**	1690	19
·40	152	33	**·40**	1728	6	**·40**	858	31	**·40**	1651	20
4·42	−·00086	+ 33	**5·42**	+·01714	− 8	**6·42**	−·00920	− 31	**7·42**	−·01609	+ 21
·44	− 19	34	**·44**	1698	9	**·44**	981	30	**·44**	1566	22
·46	+ 48	33	**·46**	1680	10	**·46**	1040	30	**·46**	1522	23
·48	114	33	**·48**	1660	11	**·48**	1099	29	**·48**	1476	24
·50	181	33	**·50**	1637	12	**·50**	1156	29	**·50**	1427	25
4·52	+·00247	+ 33	**5·52**	+·01612	− 13	**6·52**	−·01213	− 28	**7·52**	−·01377	+ 25
·54	312	32	**·54**	1585	14	**·54**	1268	27	**·54**	1326	26
·56	376	32	**·56**	1556	15	**·56**	1321	26	**·56**	1273	27
·58	441	32	**·58**	1525	16	**·58**	1373	26	**·58**	1218	28
·60	504	32	**·60**	1491	18	**·60**	1423	25	**·60**	1162	29
4·62	+·00567	+ 31	**5·62**	+·01455	− 19	**6·62**	−·01471	− 24	**7·62**	−·01104	+ 29
·64	628	31	**·64**	1417	19	**·64**	1518	23	**·64**	1046	29
·66	689	30	**·66**	1378	20	**·66**	1563	22	**·66**	987	30
·68	749	30	**·68**	1336	21	**·68**	1606	21	**·68**	926	31
·70	808	29	**·70**	1293	22	**·70**	1647	20	**·70**	864	31
4·72	+·00865	+ 28	**5·72**	+·01249	− 23	**6·72**	−·01686	− 19	**7·72**	−·00801	+ 32
·74	921	28	**·74**	1202	24	**·74**	1723	18	**·74**	738	32
·76	976	27	**·76**	1154	25	**·76**	1758	17	**·76**	673	33
·78	1030	27	**·78**	1104	26	**·78**	1791	16	**·78**	608	33
·80	1082	26	**·80**	1051	27	**·80**	1823	15	**·80**	542	33
4·82	+·01132	+ 25	**5·82**	+·00998	− 27	**6·82**	−·01851	− 14	**7·82**	−·00476	+ 33
·84	1180	24	**·84**	944	28	**·84**	1877	13	**·84**	409	34
·86	1228	24	**·86**	888	28	**·86**	1901	11	**·86**	342	34
·88	1274	23	**·88**	831	29	**·88**	1922	10	**·88**	275	34
·90	1318	22	**·90**	772	30	**·90**	1942	10	**·90**	208	34
4·92	+·01360	+ 21	**5·92**	+·00712	− 30	**6·92**	−·01960	− 8	**7·92**	−·00140	+ 34
·94	1400	20	**·94**	651	31	**·94**	1974	7	**·94**	72	34
·96	1439	19	**·96**	589	31	**·96**	1986	6	**·96**	− 5	34
·98	1475	18	**·98**	527	32	**·98**	1996	5	**·98**	+ 62	34
5·00	+·01509	+ 17	**6·00**	+·00463	− 32	**7·00**	−·02004	− 3	**8·00**	+·00129	+ 34

Applied Constant : −·00120.

The Equation of this Table must be supplemented by those of Tables XXXIV, XXXV, XXXVI.

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

Equations of Variation of Radius Vector, Doubled

XXXIV

D	Fqu tion
00	+ 00003
2	4
4	7
6	12
8	17
10	3
12	+ 00029
4	33
6	36
8	37
20	36
22	+ 00032
4	8
6	2
8	16
30	10
32	+ 0 006
4	4
6	3
8	5
40	+ 008

C t t +

XXXV

E	Equation	E	Equation
00	+ 00008	d 20	+ 001 7
1	9	1	1 2
2	12	2	115
3	16	3	107
4	23	4	98
5	31	5	88
06	+ 00040	26	+ 00077
7	50	7	66
8	60	8	55
9	71	9	45
10	8	30	35
11	+ 0093	31	+ 00027
2	10	2	0
3	111	3	14
4	119	4	10
5	1 5	5	8
16	+ 001 9	36	+ 000 8
7	131	7	10
8	132	8	14
9	131	9	19
20	+ 00127	40	+ 000 7

A1 pli d C t t + 0007

XXXVI

F	Lquation
d 00	+ 00004
2	6
4	10
6	17
8	26
10	35
12	+ 00044
4	50
6	55
8	56
20	54
22	+ 00049
4	42
6	33
8	24
30	15
32	+ 00009
4	5
6	4
8	6
40	+ 0001

0 t + 00

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XXXVII — **Equation of Latitude** — **Argument Q**

1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Q	Equation	Δ	½Δ²	Q	Equation	Δ	½Δ²	Q	Equation	Δ	½Δ²	Q	Equation	Δ	½Δ²
d				d				d				d			
0·00	0·60000	+954	0	0·50	1·01772	+607	− 7	1·00	1·12958	−189	− 9	1·50	0·85280	−844	− 4
·01	·60954	954	0	·51	1·02372	594	7	·01	1·12760	206	9	·51	·84432	852	4
·02	·61908	954	0	·52	1·02959	580	7	·02	1·12546	223	9	·52	·83576	858	4
·03	·62862	954	− 1	·53	1·03532	566	7	·03	1·12315	239	8	·53	·82715	866	4
·04	·63815	952	1	·54	1·04091	553	7	·04	1·12069	255	8	·54	·81845	873	4
·05	·64766	951	1	·55	1·04637	539	7	·05	1·11806	271	9	·55	·80969	880	4
0·06	0·65716	+949	− 1	0·56	1·05169	+525	− 8	1·06	1·11526	−288	− 8	1·56	0·80085	−887	− 3
·07	·66664	947	1	·57	1·05686	510	7	·07	1·11230	304	8	·57	·79196	893	3
·08	·67610	945	1	·58	1·06189	496	7	·08	1·10918	320	8	·58	·78300	899	3
·09	·68554	943	2	·59	1·06678	482	8	·09	1·10590	336	8	·59	·77399	904	3
·10	·69495	940	2	·60	1·07152	467	8	·10	1·10246	352	8	·60	·76491	908	3
0·11	0·70433	+937	− 2	0·61	1·07611	+452	− 8	1·11	1·09887	−367	− 8	1·61	0·75581	−914	− 3
·12	·71368	933	2	·62	1·08055	437	8	·12	1·09513	383	8	·62	·74664	919	3
·13	·72299	929	2	·63	1·08484	422	8	·13	1·09123	398	8	·63	·73743	923	2
·14	·73226	925	2	·64	1·08898	407	8	·14	1·08717	414	8	·64	·72818	927	2
·15	·74149	921	2	·65	1·09297	392	8	·15	1·08296	429	8	·65	·71889	931	2
0·16	0·75069	+917	− 3	0·66	1·09681	+376	− 8	1·16	1·07859	−444	− 8	1·66	0·70956	−935	− 2
·17	·75983	912	3	·67	1·10049	360	8	·17	1·07408	459	8	·67	·70020	938	2
·18	·76893	907	3	·68	1·10402	345	8	·18	1·06942	473	7	·68	·69080	941	2
·19	·77797	902	3	·69	1·10739	329	8	·19	1·06463	486	8	·69	·68138	944	2
·20	·78696	896	3	·70	1·11060	313	8	·20	1·05968	503	8	·70	·67193	946	1
0·21	0·79588	+890	− 3	0·71	1·11365	+297	− 8	1·21	1·05458	−517	− 7	1·71	0·66246	−948	− 1
·22	·80475	884	3	·72	1·11654	281	9	·22	1·04934	531	7	·72	·65297	950	1
·23	·81355	877	4	·73	1·11926	264	8	·23	1·04396	545	7	·73	·64346	952	1
·24	·82229	870	4	·74	1·12181	248	8	·24	1·03844	559	7	·74	·63394	953	1
·25	·83095	864	4	·75	1·12421	232	9	·25	1·03279	572	7	·75	·62441	954	− 1
0·26	0·83955	+856	− 4	0·76	1·12644	+215	− 8	1·26	1·02700	−586	− 7	1·76	0·61487	−954	0
·27	·84807	849	4	·77	1·12851	198	9	·27	1·02108	599	7	·77	·60533	954	0
·28	·85652	841	4	·78	1·13040	182	8	·28	1·01502	613	7	·78	·59579	954	0
·29	·86489	833	5	·79	1·13214	165	9	·29	1·00883	625	6	·79	·58625	954	0
·30	·87317	824	4	·80	1·13370	148	9	·30	1·00253	638	7	·80	·57671	954	+ 1
0·31	0·88137	+816	− 5	0·81	1·13510	+132	− 8	1·31	0·99609	−650	− 6	1·81	0·56719	−953	+ 1
·32	·88948	807	5	·82	1·13633	115	9	·32	·98953	663	7	·82	·55767	952	1
·33	·89751	798	5	·83	1·13739	98	9	·33	·98284	675	6	·83	·54816	950	1
·34	·90543	789	5	·84	1·13828	81	9	·34	·97603	687	6	·84	·53867	948	1
·35	·91326	779	5	·85	1·13901	64	9	·35	·96911	696	6	·85	·52920	946	1
0·36	0·92099	+769	− 5	0·86	1·13956	+ 47	− 8	1·36	0·96210	−708	− 7	1·86	0·51975	−945	+ 2
·37	·92863	759	5	·87	1·13995	31	9	·37	·95495	720	6	·87	·51031	941	1
·38	·93616	748	6	·88	1·14017	+ 14	9	·38	·94770	731	6	·88	·50091	939	2
·39	·94359	738	5	·89	1·14022	− 4	9	·39	·94033	742	6	·89	·49154	935	2
·40	·95091	727	6	·90	1·14010	21	9	·40	·93286	753	5	·90	·48220	932	2
0·41	0·95812	+715	− 6	0·91	1·13981	− 38	− 9	1·41	0·92528	−764	− 6	1·91	0·47290	−928	+ 2
·42	·96521	704	6	·92	1·13935	55	9	·42	·91760	774	5	·92	·46364	924	3
·43	·97220	693	6	·93	1·13871	72	9	·43	·90981	783	5	·93	·45443	919	2
·44	·97907	681	6	·94	1·13791	89	9	·44	·90194	793	5	·94	·44525	915	3
·45	·98582	669	6	·95	1·13694	105	8	·45	·89397	802	5	·95	43613	910	3
0·46	0·99244	+657	− 6	0·96	1·13581	−122	− 9	1·46	0·88591	−811	− 5	1·96	0·42706	−905	+ 3
·47	0·99895	645	7	·97	1·13450	139	9	·47	·87776	820	5	·97	·41805	899	3
·48	1·00533	632	6	·98	1·13303	156	9	·48	·86952	828	4	·98	·40908	894	3
·49	1·01159	620	7	·99	1·13138	173	8	·49	·86120	836	4	·99	·40018	888	4
0·50	1·01772	+607	− 7	1·00	1·12958	−189	− 9	1·50	0·85280	−844	− 4	2·00	0·39133	−881	+ 3

Applied Constant: +0·60000.

For Eclipses, and as the argument of Table XLVII, the Equation of this Table must be supplemented by those of Tables XXXVIII–XLIV. For the other phenomena the Equations of Tables XLV, XLVI must also be applied.

Tables of Longitude, Latitude, and Radius Vector

XXXVII *continued* **Equation of Latitude** **Argument Q**

		3	4			3	4			3	4			3	4
Q	Equation	Δ	½ Δ	**Q**	Equation	Δ	½ Δ²	**Q**	Equation	Δ	½ Δ²	**Q**	Equation	Δ	½ Δ²
d								d				d			
2 00	0 39133	−881	+ 3	**2 50**	0 08225	−273	+ 8	**3 00**	0 15301	+537	+ 7	**3 50**	0 55123	+951	+ 1
01	38256	874	4	**51**	07960	257	8	**01**	15845	551	7	**51**	56074	952	+ 1
02	37385	867	4	**52**	0771	41	8	**02**	16403	565	7	**52**	57027	95	0
03	365 3	860	4	**53**	07479	224	9	**03**	16974	578	7	**53**	57980	953	+ 1
04	35668	853	4	**54**	07263	208	8	**04**	17559	591	7	**54**	58934	953	0
05	34819	84,	4	**55**	07064	191	9	**05**	18157	605	7	**55**	59888	953	0
2 06	0 33978	−837	+ 4	**2 56**	0 0688	−174	+ 9	**3 06**	0 18768	+617	+ 7	**3 56**	0 60842	+953	0
07	33145	829	4	**57**	06716	158	8	**07**	19392	631	7	**57**	61796	953	0
08	323 0	8 1	5	**58**	06567	141	9	**08**	0029	643	7	**58**	62750	953	− 1
09	31504	812	5	**59**	06434	124	9	**09**	20679	656	6	**59**	63703	952	1
10	30697	803	5	**60**	06319	108	8	**10**	21341	668	6	**60**	64654	951	1
2 11	0 29898	−794	+ 5	**2 61**	0 06 20	− 91	+ 9	**3 11**	0 22015	+680	+ 6	**3 61**	0 65604	+949	− 1
12	9110	784	5	**62**	06138	74	9	**12**	2700	692	6	**62**	66552	947	1
13	8331	774	5	**63**	0607	57	9	**13**	3398	703	6	**63**	67498	945	1
14	27562	764	5	**64**	060 4	40	9	**14**	4106	714	6	**64**	68442	943	2
15	6802	754	6	**65**	05993	3	9	**15**	248 6	725	6	**65**	69383	940	2
2 16	0 6054	−743	+ 6	**2 66**	0 05979	− 6	+ 9	**3 16**	0 5556	+736	+ 6	**3 66**	0 70321	+937	− 2
17	25316	733	5	**67**	05982	+ 1	9	**17**	26 98	747	5	**67**	71256	934	2
18	24589	7 2	6	**68**	0600	29	9	**18**	27049	757	6	**68**	72188	930	2
19	2387	711	6	**69**	06039	45	8	**19**	781	768	5	**69**	73116	926	2
20	23168	699	6	**70**	06092	62	9	**20**	28584	778	5	**70**	74041	922	3
2 21	0 22476	−687	+ 6	**2 71**	0 06163	+ 79	+ 9	**3 21**	0 29367	+787	+ 5	**3 71**	0 74960	+918	− 2
22	21794	676	6	**72**	06 50	96	9	**22**	30158	796	5	**72**	75875	913	3
23	11 4	664	6	**73**	06355	113	9	**23**	30957	806	5	**73**	76785	908	3
24	20467	65	7	**74**	06476	1 9	8	**24**	31767	815	5	**74**	77690	902	3
25	19822	639	6	**75**	06614	145	9	**25**	32586	823	4	**75**	78589	897	3
2 26	0 19189	−627	+ 7	**2 76**	0 06767	+163	+ 9	**3 26**	0 33413	+832	+ 5	**3 76**	0 79483	+891	− 3
27	18569	614	7	**77**	06940	180	8	**27**	34 49	840	4	**77**	80370	885	3
28	17962	601	7	**78**	071 7	196	9	**28**	35093	848	4	**78**	81 52	878	4
29	17368	588	7	**79**	733	12	8	**29**	35944	856	4	**79**	82127	871	4
30	16787	574	7	**80**	0755	229	9	**30**	36803	862	4	**80**	82995	864	4
2 31	0 16 0	−560	+ 7	**2 81**	0 0779	+246	+ 8	**3 31**	0 37669	+869	+ 4	**3 81**	0 83855	+857	− 4
32	15667	546	7	**82**	8044	263	9	**32**	38542	876	4	**82**	84708	849	4
33	151 8	53	7	**83**	08315	279	8	**33**	39421	883	3	**83**	85554	842	4
34	146 3	518	7	**84**	08601	295	8	**34**	40307	889	4	**84**	86392	834	5
35	1409	504	7	**85**	08904	311	8	**35**	41199	896	3	**85**	87 21	825	4
2 36	13595	−489	+ 8	**2 86**	09 23	+327	+ 8	**3 36**	0 42098	+901	+ 3	**3 86**	0 8804	+817	− 5
37	13113	475	7	**87**	09558	343	8	**37**	430 1	906	3	**87**	88855	808	5
38	1 644	461	8	**88**	09908	358	8	**38**	43910	911	3	**88**	89658	799	5
39	12191	446	8	**89**	10274	374	8	**39**	44823	916	3	**89**	90452	789	5
40	11753	431	8	**90**	10656	389	8	**40**	45741	921	3	**90**	91 36	778	5
2 41	11330	−416	+ 8	**2 91**	0 11053	+405	+ 8	**3 41**	0 46664	+925	+	**3 91**	0 9 008	+769	− 5
42	109	4 0	8	**92**	11465	420	8	**42**	47592	929	2	**92**	9 772	759	5
43	1053	385	8	**93**	11893	436	8	**43**	48523	933	2	**93**	93527	749	5
44	10153	369	8	**94**	12336	451	8	**44**	49457	936	2	**94**	94 71	739	6
45	09792	353	8	**95**	1 794	465	7	**45**	50395	939	2	**95**	95005	728	6
2 46	0 9447	−338	+ 8	**2 96**	0 13 66	+479	+ 8	**3 46**	0 51336	+942	+ 1	**3 96**	0 95727	+717	− 6
47	09117	3 2	8	**97**	13753	495	8	**47**	52 79	945	2	**97**	96439	705	6
48	08803	306	9	**98**	14 55	509	7	**48**	532 5	947	1	**98**	97139	694	6
49	08506	89	8	**99**	14771	5 3	7	**49**	54173	949	1	**99**	978 8	68	6
2 50	0 08 5	− 73	+ 8	**3 00**	0 153 1	+537	+ 7	**3 50**	0 551 3	+951	+ 1	**4 00**	0 985 4	+670	− 6

Appl d C t t + 6 ∞ F E l p d th g m t f T bl XLVII th Eq ti f this T bl m t b ppl m t d by th f T bl XXXVIII XLIV F th tl ph m th Eq ti f T bl XLV XLVI m t l b ppli d

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XXXVIII — **Equation of Latitude** — **Argument U**

1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
U	Equation	Δ 0d·01	$\frac{1}{2}\Delta^2$	U	Equation	Δ 0d·01	$\frac{1}{2}\Delta^2$	U	Equation	Δ 0d·01	$\frac{1}{2}\Delta^2$	U	Equation	Δ 0d·01	$\frac{1}{2}\Delta^2$
d				d				d				d			
0·00	0·09000	+145	0	1·00	0·17009	− 29	− 2	2·00	0·05832	−134	+ 1	3·00	0·02244	+ 82	+ 2
·02	9289	145	0	·02	·16947	34	1	·02	5567	131	0	·02	2411	86	1
·04	9578	144	0	·04	·16874	39	2	·04	5307	129	+ 1	·04	2586	90	1
·06	9866	144	0	·06	·16792	44	1	·06	5052	127	0	·06	2769	94	1
·08	·10153	143	0	·08	·16700	48	1	·08	4801	124	+ 1	·08	2960	98	1
·10	·10438	142	0	·10	·16599	53	1	·10	4556	122	0	·10	3159	102	1
0·12	0·10722	+142	− 1	1·12	0·16488	− 58	− 2	2·12	0·04316	−119	+ 1	3·12	0·03365	+105	+ 1
·14	·11004	141	0	·14	·16368	63	1	·14	4082	116	1	·14	3578	108	1
·16	·11283	139	− 1	·16	·16238	67	2	·16	3854	112	1	·16	3797	112	1
·18	·11559	138	0	·18	·16100	72	1	·18	3633	109	1	·18	4024	115	1
·20	·11832	136	− 1	·20	·15952	76	1	·20	3418	106	1	·20	4256	118	+ 1
0·22	0·12101	+134	0	1·22	0·15796	− 81	− 2	2·22	0·03210	−102	+ 1	3·22	0·04494	+121	0
·24	·12367	132	− 1	·24	·15631	85	1	·24	3010	98	1	·24	4738	123	+ 1
·26	·12628	130	0	·26	·15458	89	1	·26	2817	95	1	·26	4988	126	+ 1
·28	·12885	128	− 1	·28	·15277	93	1	·28	2632	91	1	·28	5242	129	0
·30	·13137	125	0	·30	·15088	97	1	·30	2455	87	1	·30	5501	131	+ 1
0·32	0·13384	+122	− 1	1·32	0·14891	−101	− 1	2·32	0·02286	− 83	+ 1	3·32	0·05765	+133	0
·34	·13625	120	1	·34	·14687	104	1	·34	2125	78	1	·34	6032	135	+ 1
·36	·13861	116	− 1	·36	·14476	108	1	·36	1973	74	1	·36	6303	137	1
·38	·14090	113	0	·38	·14258	111	− 1	·38	1830	69	1	·38	6578	139	+ 1
·40	·14313	110	− 1	·40	·14033	114	0	·40	1696	65	1	·40	6856	140	0
0·42	0·14529	+107	− 1	1·42	0·13803	−117	− 1	2·42	0·01571	− 60	+ 1	3·42	0·07136	+141	+ 1
·44	·14739	103	1	·44	·13566	120	1	·44	1455	56	1	·44	7419	142	0
·46	·14941	99	1	·46	·13323	123	1	·46	1349	51	2	·46	7703	143	+ 1
·48	·15136	96	1	·48	·13075	126	1	·48	1253	46	1	·48	7990	144	0
·50	·15323	92	1	·50	·12822	128	0	·50	1166	41	2	·50	8278	144	0
0·52	0·15502	+ 88	− 1	1·52	0·12564	−130	− 1	2·52	0·01088	− 36	+ 1	3·52	0·08566	+144	0
·54	·15673	84	1	·54	·12301	132	0	·54	1021	32	2	·54	8855	145	0
·56	·15836	80	1	·56	·12035	134	− 1	·56	964	26	1	·56	9144	145	0
·58	·15990	75	1	·58	·11764	136	0	·58	917	21	2	·58	9433	145	0
·60	·16135	71	1	·60	·11491	138	− 1	·60	880	16	1	·60	9722	144	0
0·62	0·16271	+ 66	− 1	1·62	0·11214	−140	− 1	2·62	0·00853	− 11	+ 1	3·62	0·10009	+143	0
·64	·16399	62	1	·64	·10934	141	0	·64	836	6	2	·64	·10295	143	0
·66	·16516	57	1	·66	·10652	142	− 1	·66	830	− 1	1	·66	·10580	142	0
·68	·16625	52	1	·68	·10368	143	0	·68	834	+ 5	2	·68	·10863	141	− 1
·70	·16724	47	1	·70	·10082	144	− 1	·70	848	10	1	·70	·11143	140	0
0·72	0·16814	+ 43	− 2	1·72	0·09794	−144	0	2·72	0·00872	+ 15	+ 2	3·72	0·11421	+139	− 1
·74	·16893	37	1	·74	9506	144	0	·74	907	20	1	·74	·11696	137	0
·76	·16963	33	2	·76	9217	145	0	·76	951	25	2	·76	·11967	135	− 1
·78	·17023	28	2	·78	8928	145	0	·78	1006	30	1	·78	·12234	133	0
·80	·17072	22	1	·80	8639	145	0	·80	1071	35	1	·80	·12498	131	− 1
0·82	0·17112	+ 18	− 2	1·82	0·08350	−144	0	2·82	0·01145	+ 40	+ 2	3·82	0·12757	+129	− 1
·84	·17141	12	1	·84	8062	144	0	·84	1230	45	1	·84	·13011	126	0
·86	·17160	7	2	·86	7776	143	0	·86	1324	50	1	·86	·13261	124	− 1
·88	·17169	+ 2	1	·88	7491	142	0	·88	1428	54	1	·88	·13505	121	1
·90	·17168	− 3	2	·90	7207	141	+ 1	·90	1541	59	2	·90	·13743	118	1
0·92	0·17157	− 9	− 1	1·92	0·06927	−140	0	2·92	0·01664	+ 64	+ 1	3·92	0·13976	+115	− 1
·94	·17135	14	2	·94	6648	139	+ 1	·94	1796	68	1	·94	·14202	112	1
·96	·17103	19	1	·96	6373	137	0	·96	1936	73	2	·96	·14422	108	1
·98	·17061	24	2	·98	6100	135	+ 1	·98	2086	77	1	·98	·14634	105	1
1·00	0·17009	− 29	− 1	2·00	0·05832	−134	0	3·00	0·02244	+ 82	+ 2	4·00	0·14840	+101	− 1

Applied Constant: +0·09000.

Tables of Longitude, Latitude, and Radius Vector

Equations of Latitude

XXXIX

V	Equation
0 0	0 00050
2	45
4	41
6	38
8	36
1 0	37
1 2	0 00038
4	41
6	46
8	5
2 0	55
2 2	0 0 06
4	63
6	64
8	64
3 0	6
3 2	0 00059
4	54
6	49
8	44
4 0	0 00040

C t t + 000

XL

W	Equation	Δ 3 0^d 01	W	Equation	Δ 3 0 0	W	Equation	Δ 3 0 01	W	Equation	Δ 3 0^d 01
l			d			d			l		
0 00	0 00600	+7 8	1 00	0 01029	−1 5	2 00	0 0431	−7 1	3 00	0 00 38	+4 5
04	631	7 8	04	10	2 1	04	403	6 9	04	57	4 9
08	66	7 6	08	1012	2 6	08	376	6 6	08	277	5 1
12	69	7 6	12	1001	3 0	12	350	6 4	12	98	5 5
16	723	7 5	16	988	3 5	16	325	6 0	16	321	6 0
20	75	7 3	20	973	4 0	20	3	5 6	20	346	6 4
0 24	0 00781	+7 1	1 24	0 00956	−4 6	2 24	0 00280	−5 3	3 24	0 00372	+6 5
28	809	6 8	28	936	5 3	28	60	4 9	28	398	6 8
32	835	6 4	32	914	5 5	32	241	4 5	32	4 6	7 1
36	860	6 1	36	892	5 6	36	24	4 0	36	455	7 4
40	884	5 9	40	869	5 9	40	09	3 4	40	485	7 5
0 44	0 00907	+5 5	1 44	0 00845	−6 3	2 44	0 00197	− 9	3 44	0 00515	+7 5
48	9 8	5 1	48	819	6 8	48	186	2 5	48	545	7 8
52	948	4 8	52	791	7 0	52	177	2 0	52	577	8 0
56	966	4 4	56	763	7 1	56	170	1 5	56	609	7 6
60	983	3 9	60	734	7 4	60	165	0 9	60	638	7 5
0 64	0997	+3 3	1 64	0 00704	−7 5	2 64	0 00163	−0 3	3 64	0 00669	+7 8
68	1009	8	68	674	7 6	68	163	+0 3	68	699	7 5
72	1019	2 3	72	643	7 6	72	165	0 8	72	729	7 5
76	10 7	1 8	76	613	7 8	76	169	1 4	76	759	7 3
80	1033	1 3	80	581	7 9	80	176	1 9	80	787	7 0
0 84	0 01037	+0 6	1 84	0 00550	−7 6	2 84	0 00184	+2 3	3 84	0 00815	+6 8
88	1037	0	88	520	7 5	88	194	2 8	88	841	6 4
92	1037	−0 5	92	490	7 5	92	206	3 4	92	866	6 1
96	1034	1 0	96	460	7 4	96	1	4 0	96	890	5 9
1 00	0 010 9	−1 5	2 00	0 00431	−7 1	3 00	00 38	+4 5	4 00	0 00913	+5 6

Appli d C t t \| 6

XLI

X	Equatio	Δ 3	X	Equation	Δ 3
0 0	00	+ 18	2 0	0 00160	− 16
1	219	18	1	144	15
2	36	16	2	130	13
3	252	15	3	117	11
4	67	14	4	108	9
5	280	13	5	101	5
0 6	0 00290	+ 9	2 6	0098	− 3
7	97	5	7	97	0
8	30	+ 3	8	100	+ 4
9	303	0	9	106	6
1 0	301	− 3	3 0	115	10
1 1	0 00296	− 7	3 1	0 00127	+ 12
2	88	9	2	140	15
3	77	13	3	155	17
4	64	14	4	173	18
5	49	15	5	190	18
1 6	0 00 3	− 16	3 6	0 00209	+ 18
7	14	18	7	2 7	16
8	195	18	8	244	15
9	178	18	9	60	14
2 0	00160	− 16	4 0	0 00 73	+ 11

Appli d C t t + 00

XLII

Y	Equation
l	
0 0	0 00050
2	41
4	34
6	28
8	25
1 0	5
1 2	0 00029
4	35
6	43
8	52
2 0	61
2 2	0 00068
4	73
6	75
8	74
3 0	69
3 2	0 00063
4	55
6	46
8	37
4 0	0 0003

C ta t + 0005

XLIII

Z	Equation
l	
0 0	0 00050
2	55
4	59
6	63
8	64
1 0	64
1 2	0 0 062
4	59
6	54
8	49
2 0	45
2 2	0 00040
4	38
6	36
8	36
3 0	38
3 2	0 00042
4	46
6	51
8	56
4 0	0 00060

C t t + 000

SATELLITE II

Tables of Longitude, Latitude, and Radius Vector

XLIV Equation of Latitude — Argument Q, U

U \ Q	$0^{d}{\cdot}0$	$0^{d}{\cdot}2$	$0^{d}{\cdot}4$	$0^{d}{\cdot}6$	$0^{d}{\cdot}8$	$1^{d}{\cdot}0$	$1^{d}{\cdot}2$	$1^{d}{\cdot}4$	$1^{d}{\cdot}6$	$1^{d}{\cdot}8$	$2^{d}{\cdot}0$	$2^{d}{\cdot}2$	$2^{d}{\cdot}4$	$2^{d}{\cdot}6$	$2^{d}{\cdot}8$	$3^{d}{\cdot}0$	$3^{d}{\cdot}2$	$3^{d}{\cdot}4$	$3^{d}{\cdot}6$	$3^{d}{\cdot}8$	$4^{d}{\cdot}0$
d 0·0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
·2	44	45	49	53	56	56	53	49	45	44	46	50	54	56	55	52	48	45	44	46	50
·4	38	41	48	56	61	61	55	47	41	38	42	49	57	61	60	54	46	40	38	43	50
·6	34	38	48	58	65	64	57	46	37	34	39	49	59	65	64	56	45	36	35	40	50
·8	32	36	47	59	67	66	58	46	36	32	38	49	61	67	66	57	44	35	32	39	50
1·0	32	37	47	59	67	66	58	46	36	32	38	49	60	67	66	56	44	35	33	39	50
1·2	35	38	48	58	65	64	57	46	38	35	39	49	59	65	64	56	45	37	35	40	50
·4	39	42	48	56	61	60	55	47	41	39	42	49	57	61	60	54	46	40	39	43	50
·6	44	46	49	53	55	55	52	49	46	45	46	50	53	55	55	52	48	45	45	46	50
·8	51	51	50	50	49	49	50	50	51	51	51	50	50	49	49	50	50	49	49	49	50
2·0	57	55	51	46	43	44	47	52	56	57	55	50	46	43	44	47	52	56	57	54	50
2·2	62	59	52	44	38	39	44	53	60	62	59	51	43	38	39	45	54	61	62	58	50
·4	66	62	52	42	35	35	43	54	63	66	61	51	40	34	36	44	55	64	66	60	50
·6	68	64	53	41	33	33	42	54	65	68	63	51	39	33	34	43	56	65	68	61	50
·8	68	63	53	41	33	34	42	54	64	67	62	51	40	33	35	44	56	65	67	61	50
3·0	65	61	52	42	36	36	43	54	62	65	60	51	41	35	37	44	55	63	65	59	50
3·2	61	58	52	44	40	40	45	53	59	60	57	51	44	40	41	46	53	59	60	57	50
·4	55	54	51	48	46	46	48	51	54	54	53	50	47	45	46	48	52	54	55	53	50
·6	48	49	50	51	52	52	51	50	49	48	49	50	51	52	51	50	49	49	48	49	50
·8	42	44	49	54	57	57	53	48	44	42	45	49	55	58	57	53	48	43	42	45	50
4·0	37	40	48	57	62	62	56	47	40	37	41	49	58	63	61	55	46	39	37	42	50

The unit in this Table equals 0·00001. Applied Constant: +0·00050.

XLV

Occultations and Transits

To correct for the Jovicentric Latitude of the Earth, the Satellite's Latitude as derived from Tables XXXVII–XLIV, must be supplemented by the term—

$$\pm \cdot 229003\ R_1 \sin(\odot - \Omega)/\Delta \left\} \begin{matrix} +\text{Oc.} \\ -\text{Tr.} \end{matrix} \right. \quad (9{\cdot}359841)$$

where R_1, Δ are the Geocentric Distances of the Sun and Jupiter respectively, and Ω the Ascending Node of Jupiter's Orbit on the Ecliptic, (Table C). For Occultations employ the natural sign, for Transits the reversed sign.

XLVI Sh., Tr.

1 Lat.	2 Corrn. Sh., Tr.
0·0	− ·00121
·1	104
·2	87
·3	69
·4	52
·5	35
0·6	− ·00018
·7	0
·8	+ ·00018
·9	35
1·0	52
1·1	+ ·00069
·2	87
·3	104
1·4	+ ·00121

This Correction to be applied to Latitude as found from Tables XXXVII–XLV, before using as Argument of Semiduration for Shadows and Transits.

XLVII

1 Lat.	2 Angle	3 Lat.	4 Δ 0·01
0·00	− 3°·9968 +	1·40	569,1
·05	3·7121	·35	569,5
·10	3·4273	·30	569,9
·15	3·1422	·25	570,2
·20	2·8571	·20	570,5
·25	2·5718	·15	570,7
0·30	− 2·2864 +	1·10	571,0
·35	2·0008	·05	571,2
·40	1·7152	1·00	571,4
·45	1·4294	0·95	571,6
·50	1·1436	·90	571,7
0·55	− 0·8577 +	0·85	571,8
·60	0·5718	·80	571,8
·65	− 0·2859 +	·75	571,8
0·70	0·0000	0·70	571,8

This Table shows the Angle of the Satellite above Jupiter's Orbit, which corresponds to the Latitude as taken from Tables XXXVII–XLIV.

SATELLITE II

Tables

of the

Synodic Motion,

Duration of the Phenomena of Eclipse,

Occultation, Transit and Shadow-Transit,

with

Equations for Reduction to the Middle

and the

Light-Curve of Eclipse

SATELLITE II

Tables of Synodic Motion

XLVIII

1	2	1	2	1	2	1	2	1	2
Angle	Syn. Value	Angle	Syn. Value	Angle	Syn. Value	Angle	Syn. Value	Angle	Syn. Value
°	d	°	d	°	d	°	d	°	d
0·000	·000000	0·020	·000197	0·040	·000395	0·060	·000592	0·080	·000790
1	10	21	207	41	405	61	602	81	800
2	20	22	217	42	415	62	612	82	810
3	30	23	227	43	425	63	622	83	819
4	39	24	237	44	434	64	632	84	829
5	49	25	247	45	444	65	642	85	839
0·006	·000059	0·026	·000257	0·046	·000454	0·066	·000652	0·086	·000849
7	69	27	267	47	464	67	661	87	859
8	79	28	276	48	474	68	671	88	869
9	89	29	286	49	484	69	681	89	879
10	99	30	296	50	494	70	691	90	889
0·011	·000109	0·031	·000306	0·051	·000503	0·071	·000701	0·091	·000898
12	118	32	316	52	513	72	711	92	908
13	128	33	326	53	523	73	721	93	918
14	138	34	336	54	533	74	731	94	928
15	148	35	346	55	543	75	740	95	938
0·016	·000158	0·036	·000355	0·056	·000553	0·076	·000750	0·096	·000948
17	168	37	365	57	563	77	760	97	958
18	178	38	375	58	573	78	770	98	968
19	188	39	385	59	582	79	780	99	977
0·020	·000197	0·040	·000395	0·060	·000592	0·080	·000790	0·100	·000987

XLIX

1	2
Angle	Syn. Value
°	d
0·0	·000000
·1	987
·2	1974
·3	2962
·4	3949
·5	4936
0·6	·005923
·7	6911
·8	7898
·9	8885
1·0	·009872

These Tables show the time taken to describe a given angle, with the Mean Synodic Motion. They are to be used for converting into time the Complement or excess of Jupiter's longitude over that of the Satellite at an assumed approximate time of conjunction.

To allow for the *true* Synodic Motion modify the entry of the table by adding to it its product by the Variation as taken from Tables XXXIII-XXXVI.

SATELLITE II

Tables of the Phenomena

L Semiduration Argument Latitude

		3	4	5
Lat	Ecl Oc	Δ 00	Corr Sh T	Lat
	d			
000	04 411	59 0	− 74	1 400
005	4 7 4	58 3	74	395
010	4 994	57 6	75	390
015	43 8	56 8	75	385
020	4356	56	76	380
025	43840	55	76	375
030	044114	54 4	− 77	1 370
035	44384	53 7	77	365
040	44651	53 1	78	360
045	44915	52 4	78	355
050	45175	51 6	79	350
055	0 04543	51 0	− 79	1 345
060	45685	50 3	80	340
065	45935	49 5	80	335
070	46181	49 0	8	330
075	464 4	48 4	81	325
080	0 046665	47 7	− 81	1 320
085	4690	47 0	82	315
090	47135	46 4	82	310
095	47366	45 8	8	305
100	47593	45 2	83	300
105	0 47818	44 7	− 83	1 295
110	48040	44 1	83	290
115	48 59	43 5	84	285
120	48475	43 0	84	280
125	48689	4 5	85	275
130	0 048900	41 9	− 85	1 270
135	49108	41 4	85	265
140	49314	40 8	86	260
145	495 7	40 2	86	255
150	49716	39 7	86	250
155	0 049914	39 3	− 87	1 245
160	5 109	38 7	87	240
165	5 3 2	38	88	235
170	50491	37 7	88	230
175	5 679	37 3	88	225
180	05 864	36 7	− 89	1 220
185	51046	36 2	89	215
190	51 6	35 8	89	210
195	51404	35 4	89	205
200	51580	34 8	90	200
205	0 051753	34 3	− 90	1 195
210	519 3	33 9	90	190
215	5 09	33 5	91	185
220	5 58	33 0	91	180
225	524 2	3 6	91	175
230	0 05 584	32 1	− 9	1 170
235	5 744	31	9	165
240	52901	31 3	9	160
245	53056	30 9	9	155
250	0 053 10	30 4	− 93	1 150

		3	4	5
L t	Ecl Oc	Δ 00	Corr Sl T	Lat
	d			
250	0 053210	30 4	− 93	1 150
255	53360	3 0	93	145
260	5351	9 5	93	140
265	53656	9 1	93	135
270	53801	8 7	94	130
275	53944	8 3	94	125
280	0 054084	7 9	− 94	1 120
285	54 23	7 6	94	115
290	54360	7	95	110
295	54495	6 8	95	105
300	54628	26 3	95	100
305	0 54758	25 9	− 95	1 095
310	54887	5 5	96	090
315	55014	25 2	96	085
320	55139	24 8	96	080
325	55 62	24 4	96	075
330	0 055383	24 0	− 96	1 070
335	5550	23 6	97	065
340	55619	23	97	060
345	55735	22 9	97	055
350	55848	22 6	97	050
355	0 055960	22 3	− 97	1 045
360	56071	1 8	98	040
365	56179	21 4	98	035
370	56 85	21 1	98	030
375	5639	20 8	98	025
380	0 056493	20 4	− 98	1 020
385	56594	0 0	98	015
390	56693	19 6	99	010
395	56791	19 3	99	005
400	56886	19 0	99	1 000
405	0 056981	18 7	− 99	0 995
410	57073	18 3	99	990
415	57164	17 9	100	985
420	5725	17 6	100	980
425	57340	17 3	100	975
430	0 057425	16 9	− 100	0 970
435	57509	16 6	100	965
440	57591	16 2	100	960
445	57671	15 9	100	955
450	57750	15 6	101	950
455	0 0578 7	15 3	− 101	0 945
460	57903	14 9	101	940
465	57977	14 6	101	935
470	58049	14 2	101	930
475	58119	13 9	101	925
480	0 058188	13 6	− 101	0 920
485	58256	13 3	101	915
490	58321	13 0	101	910
495	58385	12 7	102	905
500	0 058448	12 3	− 102	0 900

		3	4	5
Lat	Ecl Oc	Δ 001	Corr Sh T	Lat
500	0 58448	1 3	− 102	900
505	58508	11 9	10	895
510	58567	11 6	10	890
515	586 6	11 4	102	885
520	58681	11 1	102	880
525	58736	10 8	1	875
530	0 058789	10 4	− 102	870
535	58840	10 0	102	865
540	58889	9 7	102	860
545	58938	9 5	102	855
550	58984	9	103	850
555	0 059029	8 9	− 103	845
560	59073	8 5	103	840
565	59114	8 1	103	835
570	59154	7 9	103	830
575	59194	7 7	103	825
580	0 059231	7 4	− 103	820
585	59 67	7 0	103	815
590	59301	6 7	103	810
595	59333	6 4	103	805
600	59365	6 1	103	800
605	0 059394	5 7	− 103	795
610	59422	5 4	103	790
615	59449	5 1	103	785
620	59473	4 8	104	780
625	59497	4 5	104	775
630	0 059518	4 3	− 104	770
635	59539	4 0	104	765
640	59558	3 7	104	760
645	59576	3 4	104	755
650	5959	3 0	104	750
655	0 059606	2 7	− 104	745
660	59619	2 4	104	740
665	59630	2 1	104	735
670	59640	1 8	104	730
675	59648	1 5	104	725
680	0 59655	1 2	− 104	720
685	59660	0 9	104	715
690	59664	0 6	104	710
695	59666	0 3	104	705
700	0 059667	0 0	− 104	700

Appl dC t t oo oo Th Argum ti tl L tt d d l df mT bl XXXVII XLVI F Sh d w d
T t th rr tl C l m t b ppli d t th t y i C l Th try m t b rr t d furth by th
Eq tl f T bl LI LVI F Sh d w d T it it m t l b rr t d f J plt Ph by T bl LXVI

LI Equation of Semiduration

α	Ecl Oc	α	Ecl Oc
d	d	d	d
0	+0 00007	2500	−0 000006
500	+ 5	3000	− 2
1000	+ 1	3500	+ 2
1500	− 4	4000	+ 6
2000	−0 000007	4500	+0 000007

N C t th b dd d

SATELLITE II

Tables of the Phenomena

LII

1	2
β	E., O., S., T.
d	d
0	0·000010
20	12
40	13
60	14
80	15
100	15
120	0·000015
140	14
160	13
180	12
200	10
220	0·000008
240	7
260	6
280	5
300	5
320	0·000005
340	6
360	7
380	8
400	0·000010

Constant: +0d·000010.

Equations of Semiduration — LIII — Oc., Tr.

β \ Lat.	·00 / 1·40	·10 / 1·30	·20 / 1·20	·30 / 1·10	·40 / 1·00	·50 / ·90	·60 / ·80	·70
d								
0	± 14	± 13	± 12	± 11	± 10	± 10	± 10	± 10
20	14	13	12	11	10	10	10	10
40	11	10	9	9	8	8	8	8
60	8	8	7	7	6	6	6	6
80	± 4	± 4	± 3	± 3	± 3	± 3	± 3	± 3
100	0	0	0	0	0	0	0	0
120	∓ 4	∓ 4	∓ 3	∓ 3	∓ 3	∓ 3	∓ 3	∓ 3
140	8	8	7	7	6	6	6	6
160	11	10	9	9	8	8	8	8
180	14	13	12	11	10	10	10	10
200	14	13	12	11	10	10	10	10
220	∓ 13	∓ 11	∓ 10	∓ 10	∓ 9	∓ 9	∓ 9	∓ 9
240	11	10	9	9	8	8	8	8
260	8	8	7	7	6	6	6	6
280	∓ 4	∓ 4	∓ 3	∓ 3	∓ 3	∓ 3	∓ 3	∓ 3
300	0	0	0	0	0	0	0	0
320	± 4	± 4	± 3	± 3	± 3	± 3	± 3	± 3
340	8	8	7	7	6	6	6	6
360	11	10	9	9	8	8	8	8
380	14	13	12	11	10	10	10	10
400	± 14	± 13	± 12	± 11	± 10	± 10	± 10	± 10

No Constant has been added. The unit is 0d·000001. The upper sign applies for Occultations, and the lower for Transits.

LIV — Ecl., Oc.

Q \ U	0d·0	0d·2	0d·4	0d·6	0d·8	1d·0	1d·2	1d·4	1d·6	1d·8	2d·0	2d·2	2d·4	2d·6	2d·8	3d·0	3d·2	3d·4	3d·6	3d·8	4d·0
d																					
0·0	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
0·2	63	64	64	65	65	64	64	63	62	61	61	60	60	60	60	61	61	62	63	64	65
0·4	68	69	70	70	70	69	68	66	65	63	62	61	61	62	63	64	66	67	68	69	70
0·6	69	70	70	71	70	69	68	66	64	63	62	62	61	62	63	65	66	68	69	70	71
0·8	66	67	67	68	68	67	67	66	64	63	62	62	61	61	62	63	64	65	66	67	67
1·0	63	64	66	67	67	68	68	67	66	66	64	63	62	61	61	61	62	62	64	65	66
1·2	63	64	66	68	69	70	71	71	70	69	67	66	64	63	61	61	61	62	63	65	67
1·4	63	64	66	67	68	69	70	69	69	67	66	64	63	62	61	61	61	62	63	64	66
1·6	61	62	63	64	64	64	64	64	63	63	62	61	60	59	59	59	60	60	61	62	63
1·8	60	60	60	60	60	60	60	60	60	60	60	60	61	61	61	60	60	60	60	60	60
2·0	61	60	60	59	59	60	61	62	63	64	65	66	66	66	65	64	63	62	61	60	60
2·2	63	62	61	61	62	63	64	66	67	69	70	70	70	70	69	67	66	64	63	62	61
2·4	63	62	61	61	62	63	64	66	67	69	70	70	70	70	69	67	65	64	63	62	61
2·6	64	62	62	61	61	62	62	63	64	65	66	67	67	67	67	66	65	64	63	62	62
2·8	66	65	64	63	62	61	61	62	62	63	64	66	67	68	68	68	68	67	66	65	64
3·0	69	68	66	65	63	62	61	61	62	63	65	67	68	70	71	71	71	70	69	68	66
3·2	67	66	64	63	62	61	60	61	62	63	64	66	67	68	69	69	69	68	67	66	64
3·4	62	61	60	60	59	59	59	60	60	61	62	63	63	63	63	63	63	62	62	61	60
3·6	60	61	61	61	61	61	61	61	60	60	60	59	59	59	59	59	60	60	60	61	61
3·8	64	65	66	66	66	66	65	64	63	62	61	60	60	60	60	61	62	63	65	65	66
4·0	69	70	71	71	71	70	68	67	65	63	62	62	61	62	63	65	66	68	69	70	71

Applied Constant: + 60. The unit in this Table equals 0d·000001.

SATELLITE II

Tables of the Phenomena

Equation of Semiduration

Q \ U	0^d0	0^d2	0^d4	0^d6	0^d8	1^d0	1^d2	1^d4	1^d6	1^d8	2^d0	2^d2	2^d4	2^d6	2^d8	3^d0	3^d2	3^d4	3^d6	3^d8	4^d0
d 00	0	1		4	7	10	1	14	15	16	15	14	12	9	6	3	1	0	0	1	2
1	3	4	6	8	11	13	13	15	18	18	17	15	1	10	7	5	4	3	3	5	6
2	11	1	14	16	19	21	23	4	4	24	23	21	19	16	13	12	10	10	11	13	15
3	2	3	25	27	30	31	33	33	33	33	31	9	7	5	23	2	21	21	2	4	26
4	34	35	37	39	41	42	43	43	43	41	4	38	36	35	34	33	33	33	34	36	38
5	46	47	48	49	51	5	52	51	51	49	48	46	45	44	43	43	44	45	46	47	48
06	54	55	56	57	58	59	59	58	57	56	55	54	52	51	51	52	52	53	54	55	57
7	61	62	6	63	64	64	64	6	62	61	60	58	57	58	58	58	58	60	61	62	62
8	64	65	65	66	67	67	67	66	64	63	62	62	61	60	61	61	62	63	64	65	65
9	64	65	66	67	67	67	67	66	65	64	63	62	61	61	61	62	62	63	64	65	66
10	63	64	65	66	66	66	65	64	63	62	61	60	60	60	60	60	61	62	63	64	65
11	60	61	62	62	62	62	62	61	60	59	57	57	56	56	56	56	57	59	60	61	62
2	54	55	56	57	57	56	56	55	53	52	50	50	49	50	50	51	52	53	54	56	57
3	47	49	50	50	50	49	47	46	44	43	41	41	41	41	42	43	45	47	48	49	50
4	39	40	40	40	39	37	36	34	33	31	30	9	30	31	32	34	36	38	39	39	40
5	30	30	30	29	28	26	24	22	20	19	18	19	19	21	2	25	27	29	30	30	31
16	2	22	2	21	19	16	14	12	10	9	9	9	10	12	14	17	20	21	22	2	22
7	17	17	16	14	1	9	6	4		1	2	3	4	7	10	12	15	17	18	17	15
8	16	15	14	12	9	6	4	2	0	0	1	2	5	8	11	13	15	16	16	15	14
9	0	18	17	14	11	8	7	5	4	4	6	7	10	13	15	17	19	19	19	18	15
20	25	24	2	19	17	15	14	13	13	14	15	17	20		24	25	6	26	25	24	22
21	35	32	31	29	27	25	4	24	24	25	27	29	31	33	35	36	35	35	34	32	31
2	43	42	40	38	37	36	35	36	36	37	39	40	42	44	45	45	45	44	43	41	39
3	51	50	48	47	46	45	46	46	47	48	50	51	5	53	53	54	53	52	51	49	48
4	57	56	54	53	53	53	53	54	55	56	57	58	59	60	60	60	59	58	57	56	54
5	61	60	59	58	58	58	58	59	60	61	62	63	64	64	65	64	63	62	61	59	59
26	64	63	62	61	61	61	61	62	63	64	65	66	66	66	67	66	65	64	63	62	62
7	64	63	6	62	61	61	61	6	63	64	65	66	67	67	67	66	65	64	63	62	61
8	61	61	60	59	59	59	59	61	61	62	63	65	65	66	65	64	64	63	62	61	60
9	57	56	55	55	54	55	55	56	58	59	59	61	62	62	62	61	60	58	57	56	55
30	50	49	48	48	48	48	49	50	52	53	54	55	55	56	55	54	53	51	50	49	48
31	4	39	38	38	39	40	41	43	44	46	47	48	48	47	46	45	43	41	40	39	38
2	28	27	6	7	28	30	31	33	36	37	37	38	37	36	35	33	31	29	28	27	27
3	18	17	17	18	19	21	23	25	27	28	29	29	8	27	25	23	20	18	17	17	16
4	6	6	6	8	10	13	15	18	19	1	21	21	19	16	13	11	9	7	6	6	7
5	0	1		4	6	9	12	15	16	16	17	15	13	10	8	5	3	1	0	1	3
36	0	2	3	6	8	11	14	16	16	16	16	13	11	8	6	3	2	1	1	2	3
7	6	7	9	11	14	16	19	2	1	21	19	17	15	12	9	8	6	6	6	8	10
8	15	17	19	21	3	26	7	8	28	8	26	24	2	19	17	16	15	15	16	17	20
9	8	29	31	33	35	37	38	38	37	36	35	33	31	29	28	27	6	27	28	29	3
40	40	41	43	45	46	47	47	48	47	45	44	42	40	39	38	38	38	39	40	41	43

Appli d C t t + 6 Th it in thi T bl q al oooo

LVI — Equation of Semiduration — Ec., Oc., Sh., Tr.

Lat. / Var.	·00 / 1·40	·02 / 1·38	·04 / 1·36	·06 / 1·34	·08 / 1·32	·10 / 1·30	·12 / 1·28	·14 / 1·26	·16 / 1·24	·18 / 1·22	·20 / 1·20	·22 / 1·18	·24 / 1·16	·26 / 1·14	·28 / 1·12	·30 / 1·10	·32 / 1·08	·34 / 1·06	·36 / 1·04
−·020	618	572	531	492	456	422	391	361	334	308	284	261	240	220	201	184	167	152	138
19	619	575	536	499	465	432	403	374	349	324	301	279	260	240	223	206	190	176	163
18	619	578	541	506	473	443	414	387	363	340	319	298	279	261	244	228	214	200	187
17	620	581	546	513	482	453	426	401	378	356	336	316	299	281	266	250	237	224	212
16	620	584	550	520	491	464	439	415	393	373	353	335	318	302	287	273	260	248	237
15	621	587	555	527	500	474	451	428	408	389	370	353	338	322	309	295	283	272	262
−·014	622	589	560	533	508	484	462	442	423	405	388	372	357	343	330	318	306	296	286
13	622	592	565	540	517	494	473	455	438	421	405	390	377	363	352	340	329	320	311
12	623	595	570	547	525	505	486	469	452	437	422	408	396	384	373	362	352	343	335
11	624	598	575	554	534	515	498	482	467	453	439	427	416	404	395	384	375	367	360
10	624	601	580	561	543	526	511	496	482	469	457	446	435	425	416	407	399	392	384
−·009	625	604	585	568	552	536	523	509	497	485	474	464	455	445	438	429	422	416	409
8	625	607	590	575	560	547	534	523	512	501	492	483	474	466	459	452	445	439	433
7	626	610	595	582	569	558	546	536	527	517	509	501	494	486	480	474	468	463	458
6	626	613	600	589	578	568	558	549	541	533	526	519	513	507	501	496	491	487	482
5	627	616	605	596	587	578	570	562	556	549	543	537	533	527	523	518	514	511	507
−·004	628	618	610	602	595	588	582	576	571	565	561	556	552	548	544	540	537	534	531
3	629	621	615	609	604	598	594	589	586	581	578	574	572	568	566	563	560	558	556
2	629	624	620	616	613	609	606	603	601	598	596	593	591	589	587	586	584	582	581
−·001	630	627	625	623	622	619	618	616	616	614	613	611	611	609	609	608	607	606	606
0	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630
+·001	631	633	635	637	639	640	642	643	645	646	647	648	650	650	652	652	653	654	655
2	631	636	640	644	647	651	654	657	659	662	664	667	669	671	673	674	676	678	679
3	632	639	645	651	656	661	666	670	674	678	681	685	689	691	695	697	699	702	704
4	632	642	650	658	665	672	678	684	689	695	699	704	708	712	716	720	723	726	729
5	633	645	655	665	674	682	690	697	704	711	716	722	728	732	738	742	746	750	754
+·006	634	647	660	671	682	692	702	711	719	727	734	741	747	753	759	764	769	773	778
7	635	650	665	678	691	702	714	724	734	743	751	759	766	773	780	786	792	797	803
8	635	653	670	685	700	713	726	737	748	759	768	777	786	794	801	808	815	821	827
9	636	656	675	692	709	723	738	750	763	775	785	795	806	814	823	830	838	845	852
10	636	659	680	699	717	734	749	764	778	791	803	814	825	835	844	853	861	868	876
+·011	637	662	685	706	726	744	761	777	793	806	820	833	845	855	866	875	884	892	901
12	637	665	690	713	735	755	774	791	808	823	838	852	864	876	887	898	908	917	925
13	638	668	695	720	744	765	786	804	823	840	855	870	884	896	909	920	931	941	950
14	638	671	700	727	752	776	798	818	837	855	872	888	903	917	930	942	954	964	974
15	639	674	705	733	761	786	810	832	852	871	889	906	923	937	952	964	977	988	999
+·016	640	676	710	740	769	796	821	845	867	887	907	925	942	958	973	987	1000	1012	1023
17	641	679	715	747	778	806	833	859	882	903	924	943	962	978	995	1009	1023	1036	1048
18	641	682	719	754	787	817	846	873	897	920	941	962	981	999	1016	1032	1046	1060	1073
19	642	685	724	761	796	827	858	886	912	936	958	980	1001	1019	1038	1054	1069	1084	1098
+·020	642	688	729	768	804	838	869	899	926	952	976	999	1020	1040	1059	1076	1093	1108	1122

Applied Constant: $+0^{d}{\cdot}000630$. The unit in this Table is equal to $0^{d}{\cdot}000001$. The Arguments of this Table are the Variation, as taken from Tables XXXIII–XXXVI, and the Latitude, from Tables XXXVII–XLVI.

LVI *continued* — Equation of Semiduration — Ec, Oc, Sh, Tr

Lt / Var	36 / 1 04	38 / 1 02	40 / 1 00	42 / 98	44 / 96	46 / 94	48 / 92	50 / 90	52 / 88	54 / 86	56 / 84	58 / 82	60 / 80	62 / 78	64 / 76	66 / 74	68 / 72	70
− 020	138	125	11	101	90	81	7	64	57	51	45	40	36	33	31	28	7	27
19	163	150	138	127	117	108	100	92	86	80	74	70	66	63	61	58	57	57
18	187	175	164	153	144	135	1 8	120	114	1 8	103	99	95	92	90	88	87	87
17	1	200	190	180	171	163	156	148	143	137	132	1 9	1 5	12	1 0	118	117	117
16	37	6	16	207	199	191	184	177	17	167	16	159	155	153	151	149	148	148
15	6	51	242	33	2 6	18	21	205	201	196	191	188	185	183	181	179	178	178
− 014	86	76	68	259	5	246	240	234	9	224	21	217	214	212	211	209	208	8
13	311	3 1	294	85	79	73	268	6	58	53	50	46	244	42	41	239	238	38
12	335	3 7	319	31	3 6	30	295	90	286	282	279	76	273	272	270	269	268	268
11	36	35	345	338	333	328	3 3	318	315	311	308	3 6	303	302	300	299	298	298
10	384	378	371	36(	361	356	35	347	344	341	338	336	334	332	331	330	3 9	329
− 009	409	403	397	392	388	383	380	375	373	370	367	365	364	362	361	360	359	359
8	433	4 8	4 3	418	414	410	407	404	401	398	396	394	393	391	390	389	389	389
7	458	453	459	444	441	437	435	43	430	427	425	423	423	421	4 0	419	419	419
6	482	478	475	471	468	465	463	460	458	456	454	453	452	451	450	449	449	449
5	507	503	501	497	495	49	491	488	487	485	483	482	482	481	480	479	479	479
− 004	531	5 9	526	5 4	522	52	518	516	515	514	513	512	511	510	510	509	509	5 9
3	556	554	55	550	549	547	546	545	544	543	54	541	541	540	54	539	539	539
2	581	580	578	577	576	575	574	574	573	572	572	571	571	571	570	570	570	570
− 001	6 6	605	6 4	603	603	60	6	602	60	601	601	60	601	601	600	600	600	600
0	630	630	63	630	630	63	630	630	630	630	630	630	630	630	630	630	630	630
+ 001	655	655	656	650	657	657	658	658	658	659	659	660	660	660	660	660	66	660
2	679	680	68	683	684	685	686	686	687	688	688	689	689	689	690	690	690	690
3	704	705	7 8	709	711	71	714	715	716	717	717	718	719	719	720	7 0	720	720
4	7 9	731	734	736	738	740	742	744	745	746	747	748	749	750	750	751	751	751
5	754	756	76	76	765	767	770	772	774	775	776	777	779	78	780	781	781	781
+ 006	778	782	785	789	79	795	797	800	802	804	806	807	808	8 9	810	811	811	811
7	803	807	811	815	819	82	8 5	828	831	833	835	836	838	839	840	841	841	841
8	8 7	83	837	84	846	850	853	856	859	862	864	866	867	869	870	871	871	871
9	85	857	863	868	873	877	881	884	888	891	893	895	897	899	9 0	901	901	901
10	876	882	889	894	899	904	908	913	916	919	9 2	924	926	928	9 9	930	931	931
+ 011	9 1	907	915	9 1	926	93	936	941	945	948	951	954	956	958	959	960	961	961
12	925	933	941	948	954	960	965	970	974	978	981	984	987	988	990	991	99	99
13	95	958	967	974	981	987	993	998	10 3	1007	1010	1013	1017	1018	1020	1021	1022	1022
14	974	984	992	10 1	1 08	1014	1020	1026	1031	1036	1039	1043	1046	1048	1049	1051	1052	1052
15	999	10 9	1018	1027	1035	1041	1 48	1054	1060	1065	1068	107	1076	1078	1 79	1081	1082	1082
+ 016	1023	1034	1044	1053	1061	1069	1076	1083	1088	1093	1098	1101	1105	1107	1109	1111	1112	1112
17	1048	1059	1 70	1 80	1088	1096	11 4	1111	1117	112	1127	1131	1135	1137	1139	1141	114	1142
18	1073	1085	1096	1107	1116	11 5	1132	1140	1146	1152	1157	1161	1165	1168	1170	1172	1173	1173
19	1098	1110	11 2	1133	1143	1152	1160	1168	1175	1181	1186	1190	1195	1198	1	1 02	1 03	12 3
+ 020	11 2	1135	1148	1159	1170	1179	1188	1196	1 03	1209	1 15	12 0	1224	1227	1 29	123	1233	1233

Appl d C t t + 0006 Th it th T bl q l to 00000 Th A g m ts f thi T bl th Vari ti tak fr m T bl XXXIII XXXVI d th Latit d fr m T bl XXXVII XLVI

SATELLITE II

Tables of the Phenomena

LVII Reductions to Middle Argument Q

1	2	3	4	5
Ecl., Oc.	Δ $0^d{\cdot}01$	Q	Sh., Tr.	Δ $0^d{\cdot}01$
d		d	d	
−0·000435	− 29	**0·00**	−0·000487	− 37
492	28	**·02**	561	37
549	29	**·04**	636	37
606	28	**·06**	710	37
661	27	**·08**	782	36
715	27	**·10**	853	35
−0·000769	− 26	**0·12**	−0·000922	− 34
820	25	**·14**	989	33
869	24	**·16**	1054	32
916	23	**·18**	1116	30
961	22	**·20**	1174	28
−0·001004	− 21	**0·22**	−0·001229	− 27
1044	19	**·24**	1281	25
1080	17	**·26**	1328	23
1112	16	**·28**	1371	21
1142	14	**·30**	1410	18
−0·001168	− 12	**0·32**	−0·001444	− 16
1191	11	**·34**	1473	14
1210	9	**·36**	1498	11
1225	6	**·38**	1517	8
1235	4	**·40**	1531	6
−0·001242	− 2	**0·42**	−0·001540	− 3
1245	− 1	**·44**	1544	− 1
1244	+ 2	**·46**	1542	+ 2
1238	4	**·48**	1535	5
1229	6	**·50**	1523	7
−0·001216	+ 8	**0·52**	−0·001506	+ 10
1199	10	**·54**	1483	13
1177	12	**·56**	1455	15
1152	13	**·58**	1423	17
1124	15	**·60**	1386	20
−0·001092	+ 16	**0·62**	−0·001345	+ 22
1057	18	**·64**	1299	24
1019	20	**·66**	1250	26
978	21	**·68**	1196	28
934	23	**·70**	1138	30
−0·000888	+ 24	**0·72**	−0·001078	+ 31
840	25	**·74**	1015	32
789	26	**·76**	949	34
736	27	**·78**	881	35
682	27	**·80**	810	36
−0·000627	+ 28	**0·82**	−0·000738	+ 36
571	28	**·84**	665	37
515	28	**·86**	591	37
458	29	**·88**	517	37
400	29	**·90**	442	38
−0·000343	+ 28	**0·92**	−0·000367	+ 37
286	28	**·94**	293	37
231	28	**·96**	220	36
175	27	**·98**	148	35
−0·000122	+ 26	**1·00**	−0·000078	+ 35

1	2	3	4	5
Ecl., Oc.	Δ $0^d{\cdot}01$	Q	Sh., Tr.	Δ $0^d{\cdot}01$
d		d	d	
−0·000122	+ 26	**1·00**	−0·000078	+ 35
70	26	**·02**	− 10	33
− 19	25	**·04**	+ 55	32
+ 29	24	**·06**	118	31
74	22	**·08**	177	29
117	21	**·10**	234	28
+0·000158	+ 20	**1·12**	+0·000287	+ 26
196	18	**·14**	336	24
230	16	**·16**	381	21
261	15	**·18**	421	19
288	13	**·20**	457	17
+0·000312	+ 11	**1·22**	+0·000488	+ 14
333	9	**·24**	514	12
349	7	**·26**	535	10
362	5	**·28**	552	7
369	3	**·30**	563	4
+0·000373	+ 1	**1·32**	+0·000569	+ 1
374	− 1	**·34**	569	− 1
370	3	**·36**	564	4
363	5	**·38**	554	6
352	7	**·40**	539	9
+0·000336	− 9	**1·42**	+0·000519	− 12
316	11	**·44**	493	14
292	13	**·46**	462	17
265	14	**·48**	427	19
235	16	**·50**	387	21
+0·000202	− 18	**1·52**	+0·000343	− 23
165	19	**·54**	296	25
125	21	**·56**	243	27
82	22	**·58**	187	29
+ 36	24	**·60**	128	30
−0·000012	− 25	**1·62**	+0·000066	− 31
62	25	**·64**	+ 1	33
113	26	**·66**	− 67	35
166	27	**·68**	137	35
220	28	**·70**	208	36
−0·000277	− 28	**1·72**	−0·000281	− 37
334	29	**·74**	355	37
391	28	**·76**	429	37
448	28	**·78**	504	37
504	28	**·80**	578	37
−0·000561	− 29	**1·82**	−0·000653	− 37
618	28	**·84**	726	36
674	27	**·86**	798	35
727	27	**·88**	869	35
780	26	**·90**	937	34
−0·000831	− 25	**1·92**	−0·001004	− 33
880	24	**·94**	1067	31
927	23	**·96**	1129	30
971	21	**·98**	1187	28
−0·001012	− 20	**2·00**	−0·001241	− 26

Applied Constant : $-0^d{\cdot}00046\text{I}$. This Table includes a constant portion of the Equation of Light. The Entry must be supplemented by Equations from Tables LVIII-LXV. The whole must be corrected by adding to it its product by the Variation, as drawn from Tables XXXIII-XXXVI. For Shadows and Transits it must also be corrected for Jupiter's Phase by Table LXVI.

Tables of the Phenomena

LVII *continued* **Reductions to Middle** **Argument Q**

		3	4	5
Ecl Oc	Δ 0 01	**Q**	Sh T	Δ 0 01
d		d	d	
−0 0 1	− 20	**2 00**	−0 001241	− 6
105	18	**02**	1292	24
1087	17	**04**	1338	2
1119	15	**06**	1380	0
1148	13	**08**	1418	18
1173	1	**10**	1451	15
−0 001196	− 10	**2 12**	−0 001479	− 13
1 14	8	**14**	1503	11
1 8	6	**16**	1521	8
1237	4	**18**	1534	5
1243	− 2	**20**	1541	− 3
−0 01 45	0	**2 22**	−0 001544	
1243	+	**24**	1541	+ 3
1 36	4	**26**	1533	5
1 26	6	**28**	1520	8
1 12	8	**30**	1502	11
−0 001195	+ 10	**2 32**	−0 001477	+ 13
1172	1	**34**	1448	15
1146	14	**36**	1416	18
1117	15	**38**	1377	20
1085	17	**40**	1335	2
−0 001049	+ 19	**2 42**	−0 001288	+ 24
1010	20	**44**	1 39	6
969	1	**46**	1184	28
9 4	23	**48**	1126	30
877	24	**50**	1064	32
−0 000829	+ 25	**2 52**	−0 001001	+ 33
778	26	**54**	934	34
7 4	7	**56**	866	35
670	7	**58**	794	36
615	28	**60**	722	36
−0 000559	+ 28	**2 62**	−0 000649	+ 37
503	28	**64**	575	37
445	9	**66**	501	38
387	9	**68**	4 5	38
331	28	**70**	351	37
−0 000274	+ 8	**2 72**	−0 000277	+ 37
19	8	**74**	204	36
163	27	**76**	133	35
111	26	**78**	− 63	34
59	6	**80**	+ 5	33
0 000008	+ 25	**2 82**	+0 000069	+ 32
+ 40	23	**84**	132	30
84	2	**86**	190	29
1 6	21	**88**	46	27
167	19	**90**	298	25
+0 000204	+ 17	**2 92**	+0 000347	+ 3
37	16	**94**	390	1
68	14	**96**	4 9	19
94	1	**98**	464	16
+0 000317	+ 11	**3 00**	+0 000494	+ 14

		3	4	5
Fcl Oc	Δ 0d 01	**Q**	Sh T	Δ 0d 01
d				
+0 000317	+ 11	**3 00**	+0 000494	+ 14
337	9	**02**	519	11
35	7	**04**	539	9
364	5	**06**	555	7
370	2	**08**	565	4
373	+ 1	**10**	570	+ 1
+0 000374	− 1	**3 12**	+0 000569	− 2
369	3	**14**	56	5
361	5	**16**	551	7
349	7	**18**	535	9
33	10	**20**	514	12
+0 000311	− 12	**3 22**	+0 000487	− 14
286	13	**24**	455	17
259	15	**26**	419	19
228	16	**28**	378	21
194	18	**30**	333	23
+0 000157	− 20	**3 32**	+0 000285	− 25
116	21	**34**	31	28
72	23	**36**	174	29
+ 25	24	**38**	115	31
− 23	25	**40**	+ 52	32
−0 000073	− 25	**3 42**	−0 000014	− 34
1 4	26	**44**	82	35
178	27	**46**	152	36
232	8	**48**	224	36
89	28	**50**	297	37
−0 000347	− 29	**3 52**	−0 000371	− 37
403	8	**54**	445	37
460	28	**56**	520	37
516	28	**58**	594	37
574	9	**60**	669	37
−0 000630	− 28	**3 62**	−0 000742	− 36
686	27	**64**	813	36
739	26	**66**	884	35
791	26	**68**	952	34
84	25	**70**	1019	32
−0 000891	− 24	**3 72**	−0 001081	− 31
937	2	**74**	1142	30
980	1	**76**	1199	28
102	20	**78**	1 52	26
1061	18	**80**	1303	24
−0 001095	− 16	**3 82**	−0 001348	− 22
11 6	15	**84**	1390	20
1154	13	**86**	1426	17
1179	1	**88**	1458	15
1201	10	**90**	1485	13
−0 001218	− 7	**3 92**	−0 001508	− 10
1230	5	**94**	1524	7
1239	3	**96**	1536	5
1244	− 2	**98**	1543	− 2
−0 001 46	0	**4 00**	−0 001545	0

Appli d C t t ooo 6 ppl m t d by Eq ti f T bl LVIII LXV T bl XXIII XXXVI

Thi T bl i l d t t p rti f th Eq ti f Light Th h l m t b t d by ddi g to it it p d t by th Vari ti as dr w fr m F Sh l w d T it it m t al b t d f J pit Ph by T bl LXVI Th E t y must b

SATELLITE II

Tables of the Phenomena

LVIII — **Reductions to Middle** — **Argument R**

1	2	3	4	5
Ecl., Oc.	Δ $0^d·01$	R	Sh., Tr.	Δ $0^d·01$
d		d	d	
0·000320	− 10	0·00	0·000320	− 11
301	9	·02	298	11
282	9	·04	277	10
264	9	·06	256	10
246	9	·08	236	10
229	9	·10	216	10
0·000212	− 8	0·12	0·000197	− 10
195	8	·14	177	9
179	8	·16	159	9
163	8	·18	141	9
148	7	·20	124	8
0·000134	− 7	0·22	0·000108	− 8
122	6	·24	94	7
110	6	·26	81	6
100	5	·28	69	6
90	5	·30	57	6
0·000081	− 4	0·32	0·000047	− 5
74	3	·34	39	4
68	3	·36	32	3
63	2	·38	27	3
59	2	·40	22	2
0·000057	− 1	0·42	0·000020	− 1
56	0	·44	19	0
57	+ 1	·46	19	+ 1
58	1	·48	21	1
61	2	·50	24	2
0·000065	+ 3	0·52	0·000029	+ 3
71	3	·54	36	4
78	4	·56	44	4
86	5	·58	53	5
96	5	·60	64	6
0·000106	+ 6	0·62	0·000076	+ 6
118	6	·64	89	7
130	6	·66	103	7
143	7	·68	118	8
157	7	·70	134	9
0·000173	+ 8	0·72	0·000152	+ 9
189	8	·74	170	9
205	8	·76	189	10
222	9	·78	209	10
240	9	·80	229	10
0·000258	+ 9	0·82	0·000249	+ 10
276	9	·84	270	10
294	9	·86	290	11
313	10	·88	312	11
332	9	·90	333	10
0·000350	+ 9	0·92	0·000354	+ 11
368	9	·94	375	10
387	9	·96	396	10
405	9	·98	417	10
0·000422	+ 8	1·00	0·000437	+ 9

1	2	3	4	5
Ecl., Oc.	Δ $0^d·01$	R	Sh., Tr.	Δ $0^d·01$
d		d	d	
0·000422	+ 8	1·00	0·000437	+ 9
438	8	·02	455	9
455	8	·04	474	9
471	8	·06	492	9
486	7	·08	510	9
500	7	·10	526	8
0·000513	+ 6	1·12	0·000540	+ 7
525	6	·14	554	7
536	6	·16	567	6
547	5	·18	579	6
556	4	·20	590	5
0·000563	+ 4	1·22	0·000598	+ 4
570	3	·24	606	3
575	2	·26	611	3
579	2	·28	616	2
582	1	·30	619	1
0·000584	+ 1	1·32	0·000621	+ 1
584	0	·34	621	0
583	− 1	·36	620	− 1
580	2	·38	617	2
576	2	·40	612	3
0·000571	− 3	1·42	0·000607	− 3
565	4	·44	600	4
557	4	·46	591	5
548	5	·48	580	6
538	5	·50	569	6
0·000527	− 6	1·52	0·000556	− 7
515	6	·54	542	7
502	7	·56	528	7
488	7	·58	512	8
473	8	·60	495	9
0·000457	− 8	1·62	0·000477	− 9
441	8	·64	458	10
425	9	·66	439	10
407	9	·68	419	10
389	9	·70	399	10
0·000371	− 9	1·72	0·000378	− 10
353	9	·74	358	11
334	9	·76	336	11
316	9	·78	315	10
297	9	·80	294	11
0·000279	− 9	1·82	0·000273	− 11
260	9	·84	251	10
242	9	·86	231	10
224	9	·88	210	10
207	8	·90	191	9
0·000191	− 8	1·92	0·000173	− 9
175	8	·94	154	9
160	7	·96	137	8
145	7	·98	120	8
0·000131	− 7	2·00	0·000104	− 8

Applied Constant: $+0^d·000320$.

SATELLITE II
Tables of the Phenomena
Reductions to Middle

LIX

A	Ec Oc Sh Tr	3 Δ o
d		
0 0	0 000061	+ 10
2	8	1
4	101	9
6	114	5
8	1 1	+ 2
1 0	1	−
1 2	0 00 113	− 6
4	97	9
6	78	10
8	57	11
2 0	36	1
2 2	0 000018	− 8
4	6	5
6	0	− 1
8		+ 3
3 0	1	7
3 2	0 000027	+ 9
4	47	1
6	69	11
8	89	10
4 0	106	8
4 2	0 000117	+ 4
4	1 1	+ 1
6	118	− 4
8	108	7
5 0	91	1
5 2	0 000071	− 11
4	49	11
6	29	9
8	12	7
6 0	3	− 3
6 2	0 000000	0
4	4	+ 4
6	17	8
8	34	10
7 0	54	11
7 2	000076	+ 10
4	96	9
6	112	7
8	12	+ 3
8 0	0 000122	− 1

C t t + 00006

LX

Ec Oc	P	3 Sh Tr
0 000029	1850	0 0 0011
	52	18
14	54	26
7	56	33
	58	38
0	60	40
000002	1862	0 000040
5	64	35
12	66	28
2	68	20
7	70	13
0 000033	1872	0 0 0007
37	74	3
38	76	
35	78	5
30	80	10
0 0000	1882	0 000018
15	84	5
8	86	32
3	88	37
1	90	39
0 000002	1892	0 000038
6	94	34
13	96	27
0	98	20
0 0000 8	1900	0 00001

Ec Oc	P	3 Sh Tr
d		d
0 0000 8	1900	0 000012
34	02	6
38	04	
39	06	1
37	08	3
31	10	9
0 000024	1912	0 000016
16	14	24
10	16	3
4	18	36
	20	38
000003	1922	0 000037
7	24	33
13	26	27
21	28	19
9	30	11
0 000035	1932	0 000005
39	34	1
40	36	0
37	38	3
32	40	8
0 000025	1942	0 000015
17	44	23
1	46	30
5	48	35
0 000002	1950	0 000038

Appli d C t t ⊢ ∞

Ec Oc	P	3 Sh Tr
d		d
0000	1950	0 000038
3	52	37
7	54	33
13	56	27
20	58	20
7	60	13
0 00034	1962	0 000006
38	64	2
39	66	1
37	68	3
31	70	9
0 000024	1972	0 000016
16	74	24
9	76	31
4	78	36
1	80	39
0 000001	1982	0 000039
5	84	35
11	86	29
18	88	22
26	90	14
0 000032	1992	0 000008
37	94	3
38	96	2
35	98	5
0 00 030	2000	0 000010

LXI

Ec Oc	S	3 Sh Tr
	d	d
0 000 20	0 0	0 000020
15	1	14
11	2	1
8	3	6
6	4	4
6	5	4
00008	0 6	0 000006
11	7	10
16	8	15
21	9	0
5	1 0	26
0 000029	1 1	0 000031
32	2	35
34	3	36
34	4	36
32	5	34
0 000028	1 6	0 000030
24	7	24
19	8	19
14	9	13
0 000010	2 0	0 000009

C t t + 0000

LXII

T	Ec Oc Sh Tr
d	d
0 0	0 000010
2	8
4	6
6	7
8	9
1 0	11
1 2	0 000 13
4	14
6	1
8	10
2 0	0 000007

C ta t + 0000

LXIII

U	Ec Oc Sh Tr	U	Ec Oc Sh Tr
	d	l	d
0 0	0 000030	2 0	0 000015
1	23	1	10
2	16	2	9
3	11	3	10
4	9	4	13
5	9	5	18
0 6	0 000012	2 6	0 000025
7	17	7	3
8	23	8	40
9	31	9	46
1 0	38	3 0	50
1 1	0 00045	3 1	0 000051
2	49	2	50
3	51	3	47
4	51	4	41
5	48	5	34
1 6	0 000042	3 6	0 000027
7	36	7	19
8	28	8	14
9	21	9	10
2 0	0 000015	4 0	0 000009

Const t + 00003

SATELLITE II

Tables of the Phenomena

LXIV — **Reduction to Middle** — **Occultations**

γ \ Q	0ᵈ·0	0ᵈ·2	0ᵈ·4	0ᵈ·6	0ᵈ·8	1ᵈ·0	1ᵈ·2	1ᵈ·4	1ᵈ·6	1ᵈ·8	2ᵈ·0	2ᵈ·2	2ᵈ·4	2ᵈ·6	2ᵈ·8	3ᵈ·0	3ᵈ·2	3ᵈ·4	3ᵈ·6	3ᵈ·8	4ᵈ·0
d																					
0	+ 6	+ 6	+ 4	+ 3	+ 1	− 1	− 3	− 5	− 6	− 6	− 5	− 4	− 3	− 1	+ 1	+ 3	+ 5	+ 6	+ 6	+ 5	+ 4
10	+ 29	+ 27	+ 22	+ 14	+ 5	− 6	− 15	− 23	− 27	− 29	− 26	− 21	− 13	− 3	+ 7	+ 16	+ 23	+ 28	+ 28	+ 26	+ 20
20	+ 50	+ 47	+ 38	+ 25	+ 8	− 10	− 26	− 40	− 48	− 50	− 46	− 37	− 23	− 6	+ 12	+ 28	+ 41	+ 48	+ 50	+ 45	+ 35
30	+ 71	+ 66	+ 54	+ 35	+ 11	− 14	− 37	− 56	− 67	− 71	− 65	− 52	− 32	− 8	+ 17	+ 40	+ 57	+ 68	+ 70	+ 64	+ 49
40	+ 89	+ 84	+ 67	+ 43	+ 14	− 17	− 47	− 70	− 85	− 89	− 82	− 65	− 40	− 10	+ 21	+ 50	+ 72	+ 86	+ 88	+ 80	+ 62
50	+ 105	+ 98	+ 79	+ 51	+ 17	− 20	− 55	− 82	− 100	− 105	− 97	− 76	− 47	− 12	+ 25	+ 59	+ 85	+ 101	+ 104	+ 94	+ 73
60	+ 117	+ 110	+ 89	+ 57	+ 18	− 23	− 62	− 92	− 112	− 117	− 108	− 85	− 53	− 13	+ 28	+ 66	+ 95	+ 113	+ 116	+ 106	+ 82
70	+ 126	+ 119	+ 96	+ 62	+ 20	− 25	− 66	− 100	− 120	− 126	− 117	− 92	− 57	− 14	+ 30	+ 71	+ 102	+ 121	+ 125	+ 114	+ 88
80	+ 132	+ 124	+ 100	+ 64	+ 21	− 26	− 69	− 104	− 126	− 132	− 122	− 96	− 59	− 15	+ 32	+ 74	+ 107	+ 127	+ 131	+ 118	+ 92
90	+ 133	+ 125	+ 101	+ 65	+ 21	− 26	− 70	− 105	− 127	− 133	− 123	− 97	− 60	− 15	+ 32	+ 75	+ 108	+ 128	+ 132	+ 120	+ 93
100	+ 130	+ 123	+ 99	+ 64	+ 21	− 26	− 69	− 103	− 125	− 130	− 121	− 95	− 59	− 15	+ 31	+ 74	+ 106	+ 126	+ 129	+ 118	+ 91
110	+ 124	+ 117	+ 94	+ 61	+ 20	− 24	− 65	− 98	− 119	− 124	− 115	− 91	− 56	− 14	+ 30	+ 70	+ 101	+ 120	+ 123	+ 112	+ 87
120	+ 114	+ 107	+ 87	+ 56	+ 18	− 22	− 60	− 90	− 109	− 114	− 106	− 83	− 52	− 13	+ 27	+ 64	+ 93	+ 110	+ 113	+ 103	+ 80
130	+ 101	+ 95	+ 77	+ 49	+ 16	− 20	− 53	− 80	− 96	− 101	− 93	− 74	− 46	− 12	+ 24	+ 57	+ 82	+ 97	+ 100	+ 91	+ 71
140	+ 85	+ 80	+ 64	+ 41	+ 13	− 17	− 45	− 67	− 81	− 85	− 78	− 62	− 38	− 10	+ 20	+ 48	+ 69	+ 81	+ 84	+ 76	+ 59
150	+ 66	+ 62	+ 50	+ 32	+ 10	− 13	− 35	− 52	− 63	− 66	− 61	− 48	− 30	− 7	+ 16	+ 37	+ 54	+ 63	+ 65	+ 60	+ 46
160	+ 45	+ 42	+ 34	+ 22	+ 7	− 9	− 24	− 36	− 43	− 45	− 42	− 33	− 20	− 5	+ 11	+ 25	+ 37	+ 43	+ 45	+ 41	+ 32
170	+ 23	+ 22	+ 17	+ 11	+ 4	− 4	− 12	− 18	− 22	− 23	− 21	− 17	− 10	− 3	+ 6	+ 13	+ 19	+ 22	+ 23	+ 21	+ 16
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	− 23	− 21	− 17	− 11	− 4	+ 4	+ 12	+ 18	+ 22	+ 23	+ 21	+ 16	+ 10	+ 3	− 5	− 13	− 18	− 22	− 22	− 20	− 16
200	− 44	− 42	− 34	− 22	− 7	+ 9	+ 23	+ 35	+ 42	+ 44	+ 41	+ 32	+ 20	+ 5	− 11	− 25	− 36	− 43	− 44	− 40	− 31
210	− 65	− 62	− 50	− 32	− 10	+ 13	+ 34	+ 52	+ 62	+ 65	+ 61	+ 48	+ 30	+ 7	− 16	− 37	− 53	− 63	− 65	− 59	− 46
220	− 84	− 79	− 64	− 41	− 13	+ 16	+ 44	+ 66	+ 80	+ 84	+ 78	+ 61	+ 38	+ 9	− 20	− 47	− 68	− 81	− 84	− 76	− 59
230	− 101	− 95	− 76	− 49	− 16	+ 20	+ 53	+ 79	+ 96	+ 101	+ 93	+ 73	+ 45	+ 11	− 24	− 57	− 82	− 97	− 100	− 91	− 70
240	− 114	− 107	− 86	− 56	− 18	+ 22	+ 60	+ 90	+ 109	+ 114	+ 105	+ 83	+ 51	+ 13	− 27	− 64	− 93	− 110	− 113	− 103	− 80
250	− 124	− 117	− 94	− 61	− 20	+ 24	+ 65	+ 98	+ 118	+ 124	+ 115	+ 91	+ 56	+ 14	− 30	− 70	− 101	− 119	− 123	− 112	− 87
260	− 130	− 123	− 99	− 64	− 21	+ 26	+ 69	+ 103	+ 125	+ 130	+ 121	+ 95	+ 59	+ 15	− 31	− 74	− 106	− 126	− 129	− 118	− 91
270	− 133	− 125	− 101	− 65	− 21	+ 26	+ 70	+ 105	+ 127	+ 133	+ 123	+ 97	+ 60	+ 15	− 32	− 75	− 106	− 128	− 132	− 120	− 93
280	− 132	− 124	− 100	− 64	− 21	+ 26	+ 69	+ 104	+ 126	+ 132	+ 122	+ 96	+ 59	+ 15	− 32	− 74	− 107	− 127	− 131	− 119	− 92
290	− 126	− 119	− 96	− 62	− 20	+ 25	+ 66	+ 100	+ 121	+ 126	+ 117	+ 92	+ 57	+ 14	− 30	− 71	− 102	− 121	− 125	− 114	− 88
300	− 117	− 110	− 89	− 57	− 19	+ 23	+ 62	+ 93	+ 112	+ 117	+ 108	+ 85	+ 53	+ 13	− 28	− 65	− 95	− 113	− 116	− 106	− 82
310	− 105	− 99	− 80	− 51	− 17	+ 20	+ 55	+ 83	+ 100	+ 105	+ 97	+ 76	+ 47	+ 12	− 25	− 59	− 85	− 101	− 104	− 95	− 73
320	− 89	− 84	− 68	− 44	− 14	+ 17	+ 47	+ 70	+ 85	+ 89	+ 82	+ 65	+ 40	+ 10	− 21	− 50	− 72	− 86	− 88	− 80	− 62
330	− 71	− 67	− 54	− 35	− 11	+ 14	+ 37	+ 56	+ 68	+ 71	+ 66	+ 52	+ 32	+ 8	− 17	− 40	− 58	− 68	− 70	− 64	− 50
340	− 51	− 48	− 38	− 25	− 8	+ 10	+ 27	+ 40	+ 48	+ 51	+ 47	+ 37	+ 23	+ 6	− 12	− 29	− 41	− 49	− 50	− 46	− 35
350	− 29	− 27	− 22	− 14	− 5	+ 6	+ 15	+ 23	+ 27	+ 29	+ 27	+ 21	+ 13	+ 3	− 7	− 16	− 23	− 28	− 29	− 26	− 20
360	− 6	− 6	− 5	− 3	− 1	+ 1	+ 3	+ 5	+ 6	+ 6	+ 6	+ 5	+ 3	+ 1	− 2	− 4	− 5	− 6	− 6	− 6	− 4
370	+ 17	+ 16	+ 13	+ 8	+ 3	− 3	− 9	− 13	− 16	− 17	− 15	− 12	− 8	− 2	+ 4	+ 9	+ 14	+ 16	+ 17	+ 15	+ 12
380	+ 39	+ 37	+ 29	+ 19	+ 6	− 8	− 20	− 31	− 37	− 39	− 36	− 28	− 18	− 4	+ 9	+ 22	+ 32	+ 37	+ 39	+ 35	+ 27
390	+ 60	+ 57	+ 46	+ 29	+ 9	− 12	− 32	− 47	− 57	− 60	− 56	− 44	− 27	− 7	+ 14	+ 34	+ 49	+ 58	+ 60	+ 54	+ 42
400	+ 80	+ 75	+ 60	+ 39	+ 13	− 16	− 42	− 63	− 76	− 80	− 74	− 58	− 36	− 9	+ 19	+ 45	+ 65	+ 77	+ 79	+ 72	+ 56

The unit in this Table equals 0ᵈ·000001. No Constant has been added.

SATELLITE II
Tables of the Phenomena

LXV **Reduction to Middle** **Transits**

γ \ Q	0^d0	0^d2	0^d4	0^d6	0^l8	1^d0	1^d2	1^l4	1^d6	1^d8	2^d0	2^d2	2^d4	2^d6	2^d8	3^d0	3^d2	3^l4	3^d6	3^d8	4^d0
0	− 6	− 5	− 4	− 3	− 1	+ 1	+ 3	+ 4	+ 5	+ 6	+ 5	+ 4	+	+ 1	− 2	− 3	− 4	− 5	− 6	− 5	− 4
10	− 35	− 33	− 6	− 17	− 6	+ 7	+ 19	+ 27	+ 34	+ 35	+ 32	+ 25	+ 16	+ 4	− 9	20	− 28	− 34	− 35	− 32	− 25
20	− 64	− 60	− 48	− 31	− 10	+ 13	+ 34	+ 50	+ 61	+ 64	+ 58	+ 47	+ 8	+ 7	− 16	− 36	− 51	− 6	− 63	− 57	− 44
30	− 90	− 85	− 68	− 44	− 14	+ 18	+ 48	+ 71	+ 86	+ 90	+ 82	+ 65	+ 40	+ 10	− 22	− 51	− 74	− 87	− 90	− 81	− 64
40	− 114	− 108	− 87	− 57	− 18	+ 23	+ 61	+ 91	+ 109	+ 114	+ 105	+ 84	+ 52	+ 13	− 8	− 65	− 92	− 110	− 114	− 103	− 80
50	− 137	− 128	− 104	− 67	− 1	+ 27	+ 7	+ 108	+ 130	+ 137	+ 1 6	+ 100	+ 61	+ 15	− 33	− 77	− 111	− 13	− 136	− 123	− 96
60	− 153	− 143	− 116	− 75	− 24	+ 3	+ 81	+ 1 1	+ 146	+ 153	+ 141	+ 112	+ 69	+ 17	− 37	− 86	− 124	− 148	− 15	− 138	− 107
70	− 165	− 155	− 125	− 81	− 26	+ 3	+ 87	+ 130	+ 157	+ 165	+ 15	+ 120	+ 74	+ 18	− 40	− 93	− 134	− 159	− 164	− 149	− 116
80	− 17	− 161	− 131	84	− 27	+ 34	+ 91	+ 135	+ 164	+ 172	+ 158	+ 1 6	+ 77	+ 19	− 4	− 97	− 139	− 166	− 171	− 155	− 121
90	− 174	− 163	− 13	− 85	− 7	+ 34	+ 9	+ 137	+ 166	+ 174	+ 160	+ 127	+ 78	+ 19	− 4	− 98	− 141	− 168	− 173	− 157	− 12
100	− 171	− 160	− 1 9	− 83	− 26	+ 33	+ 90	+ 134	+ 163	+ 171	+ 157	+ 125	+ 77	+ 19	− 41	− 96	− 138	− 165	− 170	− 154	− 120
110	− 163	− 152	− 123	− 79	− 5	+ 32	+ 86	+ 128	+ 155	+ 163	+ 149	+ 119	+ 73	+ 18	− 39	− 9	− 132	− 157	− 16	− 147	− 114
120	− 149	− 140	− 113	− 73	− 3	+ 29	+ 79	+ 118	+ 143	+ 149	+ 137	+ 109	+ 67	+ 16	− 36	− 84	− 121	− 144	− 149	− 135	− 105
130	− 132	− 124	− 100	65	− 20	+ 6	+ 70	+ 104	+ 126	+ 132	+ 1 1	+ 96	+ 59	+ 14	− 32	74	− 107	− 128	− 131	− 119	− 93
140	113	− 106	− 85	− 54	− 17	+ 2	+ 59	+ 88	+ 108	+ 113	+ 104	+ 8	+ 50	+ 12	− 7	− 62	− 91	− 109	− 112	− 101	− 79
150	− 88	− 83	− 66	− 42	− 13	+ 17	+ 46	+ 69	+ 84	+ 88	+ 81	+ 64	+ 39	+ 9	− 21	− 49	− 71	− 85	− 88	− 80	− 61
160	− 61	− 57	− 45	− 29	− 9	+ 1	+ 31	+ 48	+ 58	+ 61	+ 55	+ 44	+ 26	+ 6	− 14	− 33	− 49	− 59	− 61	− 55	− 42
170	− 32	− 30	− 25	− 15	− 5	+ 6	+ 16	+ 26	+ 31	+ 32	+ 30	+ 24	+ 13	+ 3	− 7	− 17	− 26	− 31	− 32	− 29	− 2
180	0			0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	+ 8	+ 26	+ 0	+ 14	+ 5	− 6	− 16	− 1	− 26	− 8	− 25	20	− 13	− 3	+ 7	+ 17	+ 22	+ 7	+ 27	+ 25	+ 19
200	+ 56	+ 5	+ 43	+ 28	+ 9	− 11	− 31	− 45	− 53	− 56	− 51	− 41	− 26	− 6	+ 14	+ 33	+ 46	+ 54	+ 56	+ 50	+ 40
210	+ 84	+ 78	+ 64	+ 42	+ 13	− 17	− 45	− 66	− 80	− 84	− 77	− 61	− 38	− 9	+ 21	+ 48	+ 67	+ 81	+ 83	+ 75	+ 59
220	+ 108	+ 101	+ 83	+ 54	+ 17	− 2	− 58	− 57	− 1 3	− 108	− 99	− 79	− 49	− 12	+ 27	+ 62	+ 88	+ 104	+ 108	+ 98	+ 76
230	+ 132	+ 123	+ 100	+ 64	+ 20	− 6	− 70	− 104	− 126	− 132	− 121	96	− 59	− 14	+ 32	+ 74	+ 107	+ 127	+ 131	+ 119	+ 92
240	+ 149	+ 140	+ 113	+ 73	+ 3	− 9	− 79	− 117	− 14	− 149	− 137	− 109	− 67	− 16	+ 36	+ 84	+ 121	+ 144	+ 148	+ 135	+ 105
250	+ 16	+ 15	+ 123	+ 79	+ 5	− 32	− 86	− 128	− 155	− 162	− 149	− 118	− 73	− 18	+ 39	+ 91	+ 132	+ 157	+ 161	+ 146	+ 114
260	+ 171	+ 160	+ 1 9	+ 83	+ 6	− 33	− 90	− 134	− 163	− 171	− 157	− 125	− 77	− 19	+ 41	+ 96	+ 138	+ 165	+ 170	+ 154	+ 120
270	+ 174	+ 163	+ 132	+ 85	+ 7	− 34	− 92	− 137	− 166	− 174	− 160	− 1 7	− 78	− 19	+ 4	+ 98	+ 141	+ 168	+ 173	+ 157	+ 12
280	+ 17	+ 161	+ 131	+ 84	+ 7	− 34	− 91	− 135	− 164	− 17	− 158	− 1 6	− 77	− 19	+ 42	+ 97	+ 139	+ 166	+ 171	+ 155	+ 121
290	+ 165	+ 155	+ 1 5	+ 81	+ 6	− 3	− 87	− 130	− 158	− 165	− 15	− 1 1	− 74	− 18	+ 4	+ 93	+ 134	+ 159	+ 164	+ 149	+ 116
300	+ 153	+ 144	+ 116	+ 75	+ 4	− 30	− 81	− 1 1	− 146	− 153	− 141	− 11	− 69	− 17	+ 37	+ 86	+ 124	+ 148	+ 152	+ 138	+ 1 7
310	+ 137	+ 128	+ 104	+ 67	+ 1	− 7	− 7	− 108	− 131	− 137	− 126	− 100	− 61	− 15	+ 33	+ 77	+ 111	+ 132	+ 136	+ 124	+ 96
320	+ 117	+ 109	+ 88	+ 57	+ 18	− 3	− 6	− 92	− 111	− 117	− 107	− 85	− 52	− 13	+ 8	+ 66	+ 94	+ 113	+ 116	+ 105	+ 8
330	+ 95	+ 89	+ 71	+ 45	+ 14	− 18	− 49	− 74	− 91	− 95	− 87	− 69	− 42	− 10	+ 22	+ 52	+ 76	+ 92	+ 94	+ 86	+ 66
340	+ 68	+ 54	+ 51	+ 33	+ 10	− 13	− 36	− 54	− 65	− 68	− 63	− 49	− 30	− 7	+ 16	+ 38	+ 56	+ 66	+ 68	+ 62	+ 47
350	+ 40	+ 37	+ 30	+ 18	+ 6	− 7	− 0	− 31	− 38	40	− 37	28	− 17	− 4	+ 9	+	+ 32	+ 38	+ 39	+ 36	+ 27
360	+ 10	+ 10	+ 7	+ 5	+ 1	− 2	− 5	− 7	− 10	− 10	− 10	− 7	− 5	− 1	+	+ 6	+ 9	+ 10	+ 10	+ 9	+ 8
370	− 0	− 18	− 15	− 10	− 3	+ 4	+ 11	+ 15	+ 19	+ 0	+ 18	+ 15	+ 10	+ 2	− 5	− 11	− 17	− 19	− 20	− 18	− 14
380	− 49	− 46	− 38	− 4	− 8	+ 1	+ 26	+ 39	+ 46	+ 49	+ 45	+ 36	+ 23	+ 6	− 12	− 28	− 39	− 47	− 49	− 44	− 35
390	− 77	− 72	− 59	− 37	− 12	+ 15	+ 41	+ 61	+ 73	+ 77	+ 70	+ 56	+ 35	+ 9	− 19	− 43	− 62	− 74	− 76	− 69	− 54
400	− 102	− 95	− 78	− 51	− 16	+ 0	+ 55	+ 81	+ 97	+ 10	+ 94	+ 75	+ 47	+ 11	− 5	− 59	− 83	− 98	− 101	− 9	− 72

Th ti thi T bl q l ooo N C t th b dd d

SATELLITE II
Tables of the Phenomena

LXVI Corrections for Phase **Sh., Tr.**

1	2	3	4	5	6
Additional Equation of Semi-duration.	p	Correcting Factor for Semi-duration.	Δ 0d·001	Correcting Factor for Reduction.	Δ 0d·001
d	d				
0·000000	**0·000**	·00000	0	·0000	0
0	**·002**	− 1	− 1	0	0
0	**·004**	3	1	− 1	0
0	**·006**	6	2	1	0
0	**·008**	10	3	2	− 1
0	**·010**	16	3	3	1
0·000000	**0·012**	− ·00023	− 4	− ·0005	− 1
0	**·014**	31	4	6	1
0	**·016**	40	5	8	1
0	**·018**	51	6	10	1
0	**·020**	64	7	13	1
0·000000	**0·022**	− ·00077	− 7	− ·0015	− 1
0	**·024**	91	8	18	1
0	**·026**	107	8	21	2
0	**·028**	124	9	25	2
0	**·030**	143	10	28	2
0·000001	**0·032**	− ·00162	− 10	− ·0032	− 2
1	**·034**	182	11	36	2
1	**·036**	205	12	41	2
1	**·038**	229	12	45	2
1	**·040**	253	12	50	2
0·000001	**0·042**	− ·00278	− 13	− ·0055	− 3
1	**·044**	306	14	61	3
1	**·046**	335	15	66	3
1	**·048**	364	15	72	3
1	**·050**	395	16	79	3
0·000001	**0·052**	− ·00428	− 17	− ·0085	− 3
1	**·054**	461	17	92	3
2	**·056**	496	18	99	3
2	**·058**	531	18	106	4
2	**·060**	568	19	113	4
0·000002	**0·062**	− ·00607	− 20	− ·0121	− 4
0·000002	**0·064**	− ·00646	− 20	− ·0129	− 4

1	2	3	4	5	6
Additional Equation of Semi-duration.	p	Correcting Factor for Semi-duration.	Δ 0d·001	Correcting Factor for Reduction.	Δ 0d·001
	d				
0·000002	**0·064**	− ·00646	− 20	− ·0129	− 4
2	**·066**	688	21	138	4
2	**·068**	730	21	146	4
3	**·070**	773	22	155	4
3	**·072**	818	23	164	5
3	**·074**	865	24	173	5
0·000003	**0·076**	− ·00912	− 24	− ·0183	− 5
3	**·078**	960	24	193	5
3	**·080**	1009	25	203	5
4	**·082**	1061	26	214	5
4	**·084**	1113	26	224	5
0·000004	**0·086**	− ·01166	− 27	− ·0235	− 6
4	**·088**	1221	28	246	6
4	**·090**	1278	29	258	6
5	**·092**	1335	29	270	6
5	**·094**	1393	29	281	6
0·000005	**0·096**	− ·01452	− 30	− ·0293	− 6
5	**·098**	1514	31	306	6
6	**·100**	1576	31	319	6
6	**·102**	1639	32	332	7
6	**·104**	1703	33	345	7
0·000006	**0·106**	− ·01770	− 34	− ·0360	− 7
7	**·108**	1837	34	374	7
7	**·110**	1905	35	388	7
7	**·112**	1975	36	402	8
7	**·114**	2047	36	418	8
0·000008	**0·116**	− ·02118	− 36	− ·0433	− 8
8	**·118**	2191	37	448	8
8	**·120**	2265	37	464	8
8	**·122**	2340	38	480	8
8	**·124**	2417	39	496	8
0·000008	**0·126**	− ·02497	− 40	− ·0513	− 8
0·000008	**0·128**	− ·02578	− 41	− ·0530	− 8

The Argument is the Annual Parallax p as computed from the Approximate Tables IV, V, VI.

No Constant has been added to Column 1, which gives an Additional Equation of the Semiduration. Columns 3 and 5 must be multiplied respectively into the Semiduration as taken from Tables L–LVI, and the Reduction as taken from Tables LVII–LXV, and the products taken as further corrections to these quantities.

When p is positive, these corrections apply to *Ingress* for the Shadow and *Egress* for Transit of Disc; when p is negative, they apply to *Egress* for the Shadow and *Ingress* for Transit of Disc.

SATELLITE II

Tables of the Phenomena

Progress of an Eclıpse

LXVII

Standard Lıght Curve of Eclıpse

l	Magn tude
−3 0	o o
2 8	o1
2 6	o
2 4	o4
2 2	o6
2 0	o8
−1 8	o 11
1 6	16
1 4	21
1 2	27
1 0	32
−0 8	o 39
0 6	47
0 4	56
−0 2	66
0 0	o 75

k	Mag ıtude
0 0	75
+0 2	85
0 4	98
0 6	1 14
0 8	1 31
1 0	1 48
+1 2	1 66
1 4	1 88
1 6	16
1 8	2 51
2 0	92
+2 2	3 5
2 4	3 70
2 6	4 36
2 8	5 39
+3 0	5 99

Th C di t *k* tl f tl m ltipl f th di f th
S hi h i t ff by J pit m f m tl C t f th
S t llit

LXVIII

Mean Motıon ın Lıght Curve

Lat tude	Δ *l* for 1	3 I at tude
00	0158	1 40
02	163	1 38
04	167	1 36
06	171	1 34
08	175	1 32
10	179	1 30
12	018	1 28
14	186	1 26
16	189	1 24
18	19	1 22
20	195	1 20
22	0198	1 18
24	200	1 16
26	203	1 14
28	205	1 12
30	207	1 10
32	0209	1 08
34	11	1 06
36	13	1 04
38	215	1 02
40	217	1 00
42	0218	0 98
44	o	0 96
46	21	0 94
48	22	0 92
50	223	0 90
52	0224	0 88
54	25	0 86
56	226	0 84
58	227	0 82
60	227	0 80
62	0228	0 78
64	28	0 76
66	2 8	0 74
68	2 8	0 72
70	29	0 70

LXIX

Equatıon of Motıon

Varıatıon	Correctıon
− 02	+ 0002
− 01	+ 1
00	o
+ 01	− 1
+ 02	− 000

Th A g m t i th V i ti l i d f m i bl XXXIII XXXVI tl C ti i t b ppli l t tl Eq ti f T 11 LXVIII

Th V l ity f *k* p d i l f T 11 LXVIII t d l y T 11 LXIX i t b t k witl ig + f Di pp f R pp ar

SATELLITE III

Approximate Tables

of

Heliocentric and Geocentric Conjunction

SATELLITE III

Approximate Tables of Conjunction

I Epochs for Approximate Conjunction

1	2	3	4	5	6	7	8	9	10	11
Year	Conjunction	Variation for 100^d	α	Variation for 100^d	β	γ	δ	ϵ	ζ	η
	d		d		d	d	d	d	d	d
1850	3·3152	+ 0,5	1788·5	·0	335·59	2·8	1·88	5·97	5·27	3·95
1851	3·8012	0,8	2154·1	+ ·1	302·19	3·0	0·71	6·52	5·86	4·55
***1852**	4·2872	+ 0,5	2519·8	·0	268·79	3·2	6·60	7·08	6·45	5·15
1853	3·7732	0,0	2885·4	·0	235·39	3·4	5·44	0·48	7·04	5·76
1854	4·2589	+ 0,5	3250·9	·0	201·99	3·7	4·28	1·03	0·48	6·36
1855	4·7449	− 1,4	3616·5	− ·1	168·59	3·9	3·12	1·58	1·07	6·96
***1856**	5·2301	0,0	3981·7	·0	135·20	4·1	1·95	2·14	1·66	0·41
1857	4·7159	− 0,5	14·5	·0	101·80	4·3	0·79	2·69	2·25	1·02
1858	5·2014	0,0	379·9	·0	68·40	4·6	6·68	3·24	2·84	1·62
1859	5·6871	+ 0,5	745·4	·0	35·00	4·8	5·52	3·80	3·43	2·22
***1860**	6·1731	0,8	1111·0	+ ·1	1·60	5·0	4·35	4·35	4·02	2·83
1861	5·6591	+ 1,4	1476·7	+ ·1	367·09	5·3	3·19	4·90	4·61	3·43
1862	6·1454	0,0	1842·4	·0	333·69	5·5	2·03	5·46	5·20	4·03
1863	6·6311	− 1,4	2207·9	− ·1	300·29	5·7	0·87	6·01	5·79	4·64
***1864**	7·1164	2,7	2573·1	− ·2	266·89	5·9	6·76	6·56	6·38	5·24
1865	6·6011	2,2	2938·0	− ·1	233·50	6·2	5·59	7·12	6·97	5·84
1866	7·0861	− 4,1	3303·0	− ·2	200·09	6·4	4·43	0·51	0·40	6·45
1867	0·4039	− 1,4	3660·4	− ·1	159·53	364·7	3·15	1·06	0·98	7·03
***1868**	0·8892	0,0	4025·7	·0	126·14	364·9	1·99	1·61	1·57	0·49
1869	0·3749	+ 1,9	58·6	+ ·1	92·74	365·2	0·83	2·17	2·16	1·09
1870	0·8614	3,0	424·5	+ ·2	59·34	0·1	6·72	2·72	2·75	1·70
1871	1·3482	+ 3,6	790·6	+ ·2	25·94	0·3	5·55	3·27	3·34	2·30
***1872**	1·8352	2,7	1156·9	+ ·2	391·43	0·6	4·39	3·83	3·93	2·90
1873	1·3220	+ 1,4	1523·0	+ ·1	358·03	0·8	3·23	4·38	4·52	3·51
1874	1·8083	− 0,3	1888·8	·0	324·63	1·0	2·07	4·93	5·11	4·11
1875	2·2939	2,7	2254·2	− ·2	291·23	1·3	0·90	5·49	5·70	4·71
***1876**	2·7787	− 3,3	2619·1	− ·2	257·83	1·5	6·79	6·04	6·29	5·32
1877	2·2632	2,5	2983·9	− ·2	224·44	1·7	5·63	6·59	6·88	5·92
1878	2·7479	2,7	3348·6	− ·2	191·04	1·9	4·47	7·15	0·32	6·52
1879	3·2326	− 0,5	3713·5	·0	157·64	2·2	3·30	0·54	0·91	7·12
***1880**	3·7182	+ 1,4	4078·9	+ ·1	124·24	2·4	2·14	1·10	1·50	0·58
1881	3·2044	+ 2,7	112·1	+ ·2	90·84	2·6	0·98	1·65	2·09	1·18
1882	3·6912	2,7	478·2	+ ·2	57·45	2·8	6·87	2·20	2·68	1·78
1883	4·1779	1,6	844·3	+ ·1	24·05	3·1	5·71	2·76	3·27	2·39
***1884**	4·6643	+ 0,5	1210·2	·0	389·53	3·3	4·54	3·31	3·86	2·99
1885	4·1502	− 0,8	1575·8	− ·1	356·13	3·5	3·38	3·86	4·45	3·59
1886	4·6356	− 1,9	1941·0	− ·1	322·74	3·7	2·22	4·42	5·04	4·20
1887	5·1207	1,6	2306·1	− ·1	289·34	4·0	1·06	4·97	5·63	4·80
***1888**	5·6058	1,4	2671·2	− ·1	255·94	4·2	6·94	5·52	6·22	5·40
1889	5·0911	− 0,5	3036·4	·0	222·54	4·4	5·78	6·08	6·81	6·01
1890	5·5766	+ 1,4	3401·8	+ ·1	189·14	4·6	4·62	6·63	0·24	6·61
1891	6·0629	+ 1,9	3767·6	+ ·1	155·75	4·9	3·46	0·03	0·83	0·06
***1892**	6·5493	1,6	4133·4	+ ·1	122·35	5·1	2·29	0·58	1·42	0·66
1893	6·0357	1,9	166·7	+ ·1	88·95	5·3	1·13	1·14	2·01	1·27
1894	6·5221	+ 0,8	532·6	+ ·1	55·55	5·5	7·02	1·69	2·60	1·87
1895	7·0082	− 0,5	898·3	·0	22·15	5·8	5·86	2·24	3·19	2·47
***1896**	0·3273	− 0,8	1256·5	− ·1	380·47	364·1	4·58	2·78	3·77	3·07
1897	6·9792	1,9	1629·0	− ·1	354·23	6·2	3·54	3·35	4·37	3·68
1898	0·2978	1,1	1986·9	− ·1	313·68	364·5	2·25	3·89	4·95	4·27
1899	0·7832	− 1,1	2352·1	− ·1	280·28	364·8	1·09	4·44	5·54	4·88
1900	1·2685	+ 0,5	2717·4	·0	246·88	365·0	6·98	5·00	6·13	5·48
Period	7·1664	...	4332·6	...	398·88	365·3	7·05	7·16	7·15	7·15

The constant $-0^d{\cdot}1300$ has been applied to each entry in column 2, and $-0^d{\cdot}12$ to each entry in columns 6–11.

Column 2 corrected by the equations from the following tables, gives superior conjunction as required for Eclipses and Occultations. To find inferior conjunction for Shadows and Transits, add (or subtract) one half the synodic period, $3^d{\cdot}5832$, to the entries in each of the columns 2, 4, 6–11.

SATELLITE III

Approximate Tables of Conjunction

I *continued*

Epochs for Approximate Conjunction

		3	4	5	6	7	8	9		
Year	Conjunction	Variation for 100d	α	Variation for 100d	β	γ	δ	ε	ζ	η
	d				d				d	d
1900	1 685	+ 0 5	717 4		246 88	365	6 98	5 0	6 13	5 48
1901	1 7545	1 4	3083 0	+ 1	213 48	0	5 82	5 55	6 7	6 8
1902	2 407	+ 0 8	3448 7	+ 1	180 08		4 66	6 11	0 16	6 69
1903	2 7 68	0 0	3814 4	0	146 69	0 4	3 49	6 66	0 75	0 14
1904	3 1 5	− 0 5	4179 9	0	113 9	0 6	33	0 06	1 34	0 74
1905	6981	0 8	1 7	− 1	79 89	0 9	1 17	0 61	1 93	1 34
1906	3 1835	− 0 8	578 0	− 1	46 49	1 1	0 01	1 16	5	1 95
1907	3 6690	− 0 5	943 3	0	13 09	1 3	5 89	1 7	3 11	2 55
1908	4 1445	0 0	13 86	0	378 58	1 6	4 73	7	3 70	3 15
1909	3 6403	0 0	1674 1	0	345 18	1 8	3 57	8	4 9	3 76
1910	4 1 60	+ 1 1	039 6	+ 1	311 8		2 41	3 38	4 88	4 36
1911	4 61	+ 0 3	405 3	0	278 38	2	1 24	3 93	5 47	4 96
1912	5 0980	+ 0 5	77 9	0	244 99	2 5	0 08	4 48	6 06	5 57
1913	4 5840	0	3136 5	0	211 59	7	5 97	5 04	6 65	6 17
1914	5 0697	− 0 8	35 0	− 1	178 1	2 9	4 81	5 59	0 08	6 77
1915	5 5551	1 1	3867 3	− 1	144 79	3 1	3 65	6 14	0 67	0 2
1916	6 0405	− 1 4	4 3 5	− 1	111 39	3 4	2 48	6 70	1 6	0 83
1917	5 5257	0 0	65 1	0	78 00	3 6	1 3	0 10	1 85	1 43
1918	6 115	+ 0 5	630 6	0	44 60	3 8	0 16	0 65	44	2 03
1919	6 4974	0 8	996	+ 1	11 20	4 0	6 05	1 0	3 03	64
1920	6 9835	1 4	1361 9	+ 1	376 68	4 3	4 89	1 75	3 6	3 24
1921	6 4697	+ 1 9	1727 7	+ 1	343 9	4 5	3 2	2 31	4 21	3 85
1922	6 956	− 1 9	093 6	− 1	309 88	4 7	2 56	86	4 80	4 45
1923	748	0 3	451 5		69 3	363 0	1 28	3 40	5 38	5 04
1924	7605	3 3	2816 9	−	35 93	363 3	0 1	3 96	5 97	5 64
1925	0 245	3 6	3181 6	− 2	202 53	363 5	6 01	4 51	6 56	6 25
1926	0 7 95	− 3 3	3546 3	− 2	169 13	363 7	4 84	5 06	7 14	6 85
1927	1 2140	− 1 4	3911 1	− 1	135 73	363 9	3 68	5 62	0 58	0 30
*1928	1 6993	+ 5	4 76 3	0	10 33	364 2	2 5	6 17	1 17	0 90
1929	185	2 7	309 3	+ 2	68 93	364 4	1 36	6 73	1 76	1 51
1930	1 67	3 0	675 4	+ 1	35 54	364 6	0 0	0 12	35	2 11
1931	1588	+ 3 3	1041 6	+	14	364 8	6 08	0 68	2 94	71
1932	6458	7	1407 7	+ 2	36 6	365 1	4 9	1 23	3 53	3 32
1933	13 5	+ 0 8	1773 8	+ 1	334 3	0 0	3 76	1 78	4 12	3 92
1934	6186	− 0 8	139 5	− 1	300 83	0 3	2 60	34	4 71	4 52
1935	3 1 40	7	25 4 8	−	267 43	0 5	1 43	89	5 30	5 13
*1936	3 5888	− 3 6	869 7	−	34 03	7	0 7	3 44	5 89	5 73
1937	3 73	3 6	3 34 4	− 2	200 63	0 9	6 16	4 00	6 48	6 34
1938	3 5577	1 9	3599 1	− 1	167 24	1 2	5 0	4 55	7 07	6 94
1939	4 4 7	− 0 5	3964 1	0	133 84	1 4	3 83	5 10	51	0 39
1940	4 5 83	+ 1 9	43 9 5	+ 1	100 44	1 6	67	5 66	1 10	0 99
1941	4 147	+ 7	362 8	+	67 4	1 8	1 51	6 21	1 69	1 59
1942	4 5 14	2	7 8 9	+ 1	33 64	2 1	0 35	6 6	2 28	2 20
1943	4 9880	+ 1 4	1094 9	+ 1	24	2 3	6 24	0 16	2 87	2 80
1944	5 4742	0 0	146 7	0	365 73	2 5	5 07	0 72	3 46	3 41
1945	4 9600	− 0 8	18 6 2	− 1	33 33	2 8	3 91	1 27	4 05	4 01
1946	5 4454	− 1 6	191 4	− 2	298 93	3 0	75	1 82	4 64	4 61
1947	5 9306	1 6	556 5	− 1	265 54	3	1 59	2 38	5 23	5 2
1948	6 4157	− 0 8	9 1 7	− 1	3 14	3 4	0 4	2 93	5 82	5 82
1949	5 901	0 0	3 87	0	198 74	3 7	6 31	3 48	6 41	6 42
1950	6 3869	+ 1 4	365 5	+ 1	165 34	3 9	5 15	4 04	7 00	7 03
Period	7 1664		4332 6		398 88	365 3	7 05	7 16	7 15	7 15

The constant $-0^d\,1300$ has been applied to each entry in column and $-0^d\,12$ to each entry in columns 6 11

Column 2 corrected by the equations of the following tables gives superior conjunctions required for Eclipses and Occultations To find inferior conjunction for Shadows and Transits add (or subtract) one half the synodic period $3^d\,583$ to the entries in each of the columns 2 4 6–11

SATELLITE III

Approximate Tables of Conjunction

I *continued*

Epochs for Approximate Conjunction

1	2	3	4	5	6	7	8	9	10	11
Year	Conjunction	Variation for 100^d	a	Variation for 100^d	β	γ	δ	ϵ	ζ	η
	d		d		d	d	d	d	d	d
1950	6·3869	+ 1,4	3652·5	+ ·1	165·34	3·9	5·15	4·04	7·00	7·03
1951	6·8732	1,4	4018·3	+ ·1	131·94	4·1	3·99	4·59	0·44	0·48
*1952	0·1930	1,6	44·3	+ ·1	91·38	362·4	2·71	5·13	1·01	1·07
1953	6·8458	1,1	417·3	+ ·1	65·15	4·6	1·66	5·70	1·62	1·68
1954	0·1655	+ 0,3	775·9	·0	24·58	362·9	0·38	6·24	2·19	2·27
1955	0·6514	− 0,3	1141·5	·0	390·07	363·1	6·27	6·79	2·78	2·88
*1956	1·1370	− 1,1	1506·8	− ·1	356·67	363·3	5·11	0·19	3·37	3·48
1957	0·6224	− 1,6	1872·1	− ·1	323·27	363·6	3·95	0·74	3·96	4·08
1958	1·1075	− 1,1	2237·2	− ·1	289·87	363·8	2·79	1·30	4·55	4·69
1959	1·5929	0,0	2602·5	·0	256·48	364·0	1·62	1·85	5·14	5·29
*1960	2·0786	+ 1,1	2968·0	+ ·1	223·08	364·2	0·46	2·40	5·73	5·90
1961	1·5648	+ 0,8	3333·7	+ ·1	189·68	364·5	6·35	2·96	6·32	6·50
1962	2·0508	+ 0,5	3699·4	·0	156·28	364·7	5·19	3·51	6·91	7·10
1963	2·5368	− 0,5	4064·9	·0	122·88	364·9	4·02	4·06	0·35	0·55
*1964	3·0223	0,8	97·8	− ·1	89·48	365·2	2·86	4·62	0·94	1·15
1965	2·5078	− 1,1	463·1	− ·1	56·09	0·1	1·70	5·17	1·53	1·76
1966	2·9931	0,0	828·4	·0	22·69	0·3	0·54	5·72	2·12	2·36
1967	3·4789	− 1,4	1193·9	− ·1	388·17	0·6	6·42	6·28	2·71	2·97
*1968	3·9641	+ 0,5	1559·1	·0	354·78	0·8	5·26	6·83	3·30	3·57
1969	3·4500	0,8	1924·7	+ ·1	321·38	1·0	4·10	0·23	3·89	4·17
1970	3·9361	1,1	2290·3	+ ·1	287·98	1·2	2·94	0·78	4·48	4·78
1971	4·4222	+ 0,3	2656·0	·0	254·58	1·5	1·77	1·33	5·07	5·38
*1972	4·9081	+ 0,5	3021·6	·0	221·18	1·7	0·61	1·89	5·66	5·98
1973	4·3940	− 0,8	3387·2	− ·1	187·79	1·9	6·50	2·44	6·25	6·59
1974	5·8795	1,4	3753·5	− ·1	154·39	2·1	5·34	3·00	6·84	0·04
1975	5·3647	− 1,1	4117·7	− ·1	120·99	2·4	4·18	3·55	0·27	0·64
*1976	5·8501	+ 1,9	150·4	+ ·1	87·59	2·6	3·01	4·10	0·86	1·24
1977	5·3365	− 3,0	516·2	− ·2	54·19	2·8	1·85	4·66	1·45	1·85
1978	5·8212	+ 0,3	881·0	·0	20·79	3·1	0·69	5·21	2·04	2·45
1979	6·3070	1,9	1246·6	+ ·1	386·28	3·3	6·58	5·76	2·63	3·05
*1980	6·7935	1,6	1612·5	+ ·1	352·88	3·5	5·41	6·32	3·22	3·66
1981	6·2798	+ 1,4	1978·4	+ ·1	319·48	3·7	4·25	6·87	3·81	4·26
1982	6·7661	− 0,4	2244·2	·0	286·09	4·0	3·09	0·27	4·40	4·86
1983	0·0853	− 2,7	2702·4	− ·2	245·52	362·3	1·81	0·81	4·98	5·46
*1984	0·5701	− 3,0	3067·3	+ ·1	212·12	362·5	0·65	1·36	5·57	6·06
1985	0·0563	− 4,1	3432·1	− ·3	178·72	362·7	6·54	1·92	6·16	6·66
1986	0·5389	− 2,7	3796·6	− ·2	145·33	363·0	5·38	2·47	6·75	0·11
1987	1·0236	− 0,8	4161·4	− ·1	111·93	363·2	4·21	3·02	0·19	0·72
*1988	1·5091	+ 0,8	194·2	+ ·1	78·53	363·4	3·05	3·58	0·78	1·32
1989	0·9952	2,5	559·9	+ ·1	45·13	363·6	1·89	4·13	1·37	1·92
1990	1·4818	3,6	925·9	+ ·2	11·73	363·9	0·73	4·68	1·96	2·53
1991	1·9688	+ 3,0	1292·2	+ ·2	377·22	364·1	6·61	5·24	2·55	3·13
*1992	2·4557	2,5	1658·4	+ ·1	343·82	364·3	5·45	5·79	3·14	3·73
1993	1·9423	+ 0,3	2024·3	·0	310·42	364·5	4·29	6·34	3·73	4·34
1994	2·4282	− 1,4	2389·9	− ·1	277·03	364·8	3·13	6·90	4·32	4·94
1995	2·9134	3,0	2755·1	− ·2	243·63	365·0	1·96	0·29	4·91	5·54
*1996	3·3980	− 3,6	3119·9	− ·2	210·23	0·0	0·80	0·85	5·50	6·15
1997	2·8825	3,3	3484·6	− ·2	176·83	0·2	6·69	1·40	6·09	6·75
1998	3·3670	− 1,9	3849·4	− ·1	143·43	0·4	5·53	1·95	6·68	0·20
1999	3·8521	0,0	4214·5	·0	110·03	0·6	4·36	2·51	0·12	0·80
*2000	4·3378	...	247·3	...	76·64	0·9	3·20	3·06	0·70	1·41
Period	7·1664	...	4332·6	...	398·88	365·3	7·05	7·16	7·15	7·15

The constant $-0^d·1300$ has been applied to each entry in column 2, and $-0^d·12$ to each entry in columns 6–11.

Column 2 corrected by the equations of the following tables, gives superior conjunction as required for Eclipses and Occultations. To find inferior conjunction for Shadows and Transits, add (or subtract) one half the synodic period, $3^d·5832$, to the entries in each of the columns 2, 4, 6–11.

SATELLITE III

Approximate Tables of Conjunction

II

Motions of the Arguments

		3	4	5	6	7
Syn R v	Date	α β γ	ʃ		ζ	η
1	J nuary 7 1664	7 17	0 1	01	01	0 01
2	14 33 8	14 33	0 3		0 0	0 02
3	1 499	1 50	0 35	3	3	0 04
4	8 6655	8 67	0 46	0 04	0 05	0 5
5	Eebrua y 4 8319	35 83	0 58	0 05	0 06	0 06
6	11 9983	43 0	0 69	0 07	0 07	0 07
7	19 1647	50 16	0 81	0 08	0 08	0 08
8	6 3311	57 33	0 9	0 09	0 09	0 09
9	Ma ch 5 4975	64 50	1 04	0 10	1	0 11
10	1 6639	71 66	1 15	0 11	0 12	0 12
11	19 83 3	78 83	1 7	0 12	0 13	0 13
12	26 9966	86 00	1 39	0 13	0 14	0 14
13	Ap il 3 1630	93 16	1 50	0 14	0 15	0 15
14	10 3 94	1 0 33	1 6	0 15	0 16	0 17
15	17 4958	107 50	1 73	0 16	0 17	0 18
16	24 6622	114 66	1 85	0 17	0 19	0 19
17	May 1 8286	121 83	1 96	0 18	0 20	0 0
18	8 9950	129 00	2 08	0 0	0 21	21
19	16 1614	136 16	2 19	0 1	0 2	0 2
20	3 3277	143 33	2 31	0 2	0 23	0 24
21	30 4941	150 49	2 42	0 23	0 24	0 25
22	J ıne 6 66 5	157 66	54	0 4	0 5	0 6
23	13 8 69	164 83	66	0 5	0 27	0 7
24	9933	171 99	77	0 26	0 8	0 28
25	8 1597	179 16	89	0 7	0 29	0 30
26	July 5 3261	186 33	3 0	0 28	0 30	0 31
27	1 49 5	193 49	3 12	0 29	0 31	32
28	19 6588	00 66	3 23	0 3	0 3	33
29	6 8 5	07 83	3 35	0 32	0 34	0 34
30	August 2 9916	14 99	3 46	0 33	0 35	0 36
31	10 1580	22 16	3 58	0 34	0 36	0 37
32	17 3 44	2 9 32	3 69	0 35	0 37	0 38
33	4 49 8	236 49	3 81	0 36	0 38	0 39
34	31 657	43 66	3 93	0 37	0 39	0 40
35	S ptember 7 8 36	50 82	4 04	0 38	0 40	0 41
36	14 9899	57 99	4 16	0 39	0 42	0 43
37	1563	265 16	4 27	0 4	0 43	0 44
38	9 3 7	272 32	4 39	0 41	0 44	0 45
39	October 6 4891	79 49	4 50	42	0 45	0 46
40	13 6555	86 66	4 62	0 43	0 46	0 47
41	0 8 19	293 82	4 73	0 45	0 47	0 49
42	7 9883	300 99	4 85	0 46	0 49	0 50
43	November 4 1547	3 8 15	4 96	0 47	0 50	0 51
44	11 3 10	315 3	5 08	0 48	0 51	0 5
45	18 4874	3 2 49	5 2	0 49	0 52	0 53
46	25 6538	3 9 65	5 31	0 50	0 53	0 54
47	D cembe 8 02	336 8	5 43	0 51	0 54	0 56
48	9 9866	343 99	5 54	0 5	0 56	57
49	17 1530	351 15	5 66	53	0 57	58
50	24 3194	358 32	5 77	0 54	0 58	0 59
51	31 4857	365 49	5 89	55	0 59	0 60

I L pY dmi ihth d t C l m by ft F b 8

SATELLITE III

Approximate Tables of Conjunction

1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
α	Equation	$\frac{\Delta}{10^d}$	α	Equation	$\frac{\Delta}{10^d}$	α	Equation	$\frac{\Delta}{10^d}$	α	Equation	$\frac{\Delta}{10^d}$	α	Equation	$\frac{\Delta}{10^d}$
d	d		d	d		d	d		d	d		d	d	
0	0·1200	+17,0	1000	0·2301	+ 1,0	2000	0·1447	−14,8	3000	0·0193	− 6,5	4000	0·0662	+14,8
20	1234	17,0	1020	2302	+ 0,5	2020	1418	14,5	3020	180	6,0	4020	692	15,0
40	1268	16,8	1040	2303	0,0	2040	1389	14,8	3040	169	5,5	4040	722	15,3
60	1301	16,8	1060	2302	− 0,5	2060	1359	15,0	3060	158	5,3	4060	753	15,5
80	1335	17,0	1080	2301	0,8	2080	1329	15,0	3080	148	4,8	4080	784	15,5
100	1369	16,8	1100	2299	1,5	2100	1299	15,0	3100	139	4,3	4100	815	15,8
120	0·1402	+16,5	1120	0·2295	− 2,0	2120	0·1269	−15,0	3120	0·0131	− 3,8	4120	0·0847	+16,0
140	1435	16,5	1140	2291	2,3	2140	1239	15,0	3140	124	3,3	4140	879	16,0
160	1468	16,5	1160	2286	2,5	2160	1209	15,0	3160	118	3,0	4160	911	16,3
180	1501	16,3	1180	2281	3,0	2180	1179	15,0	3180	112	2,8	4180	944	16,5
200	1533	16,0	1200	2274	3,8	2200	1149	15,0	3200	107	2,3	4200	977	16,5
220	0·1565	+16,0	1220	0·2266	− 4,0	2220	0·1119	−14,8	3220	0·0103	− 1,8	4220	0·1010	+16,8
240	1597	15,8	1240	2258	4,5	2240	1090	14,8	3240	100	1,3	4240	1044	16,8
260	1628	15,5	1260	2248	5,0	2260	1060	15,0	3260	98	0,5	4260	1077	16,8
280	1659	15,3	1280	2238	5,3	2280	1030	15,0	3280	98	− 0,3	4280	1111	17,0
300	1689	15,0	1300	2227	5,8	2300	1000	14,8	3300	97	0,0	4300	1145	17,0
320	0·1719	+15,0	1320	0·2215	− 6,0	2320	0·0971	−14,5	3320	0·0098	+ 0,8	4320	0·1179	+17,0
340	1749	14,8	1340	2203	6,5	2340	942	14,5	3340	100	1,3	4340	1213	16,8
360	1778	14,3	1360	2189	7,0	2360	913	14,5	3360	103	1,8	4360	1246	16,8
380	1806	14,0	1380	2175	7,3	2380	884	14,5	3380	107	2,0	4380	1280	17,0
400	1834	13,8	1400	2160	7,8	2400	855	14,5	3400	111	2,5	4400	1314	16,8
420	0·1861	+13,3	1420	0·2144	− 8,0	2420	0·0826	−14,3	3420	0·0117	+ 3,3	4420	0·1347	+16,8
440	1887	13,0	1440	2128	8,3	2440	798	14,0	3440	124	3,5	4440	1381	16,8
460	1913	12,8	1460	2111	8,8	2460	770	13,8	3460	131	4,0	4460	1414	16,5
480	1938	12,5	1480	2093	9,0	2480	743	13,8	3480	140	4,5	4480	1447	16,5
500	1963	12,3	1500	2075	9,5	2500	715	13,8	3500	149	4,8	4500	1480	16,5
520	0·1987	+11,8	1520	0·2055	−10,0	2520	0·0688	−13,3	3520	0·0159	+ 5,5	4520	0·1513	+16,3
540	2010	11,3	1540	2035	10,0	2540	662	13,0	3540	171	6,0	4540	1545	16,0
560	2032	10,8	1560	2015	10,3	2560	636	13,0	3560	183	6,3	4560	1577	15,8
580	2053	10,5	1580	1994	10,8	2580	610	13,0	3580	196	6,8	4580	1608	15,5
600	2074	10,3	1600	1972	11,0	2600	584	12,8	3600	210	7,3	4600	1639	15,5
620	0·2094	+ 9,8	1620	0·1950	−11,0	2620	0·0559	−12,3	3620	0·0225	+ 7,8	4620	0·1670	+15,3
640	2113	9,3	1640	1928	11,3	2640	535	12,0	3640	241	8,3	4640	1700	15,0
660	2131	8,8	1660	1905	11,8	2660	511	12,0	3660	258	8,5	4660	1730	14,8
680	2148	8,3	1680	1881	12,3	2680	487	11,8	3680	275	9,0	4680	1759	14,5
700	2164	8,0	1700	1856	12,3	2700	464	11,5	3700	294	9,5	4700	1788	14,3
720	0·2180	+ 7,8	1720	0·1832	−12,3	2720	0·0441	−11,3	3720	0·0313	+ 9,8	4720	0·1816	+14,0
740	2195	7,3	1740	1807	12,8	2740	419	10,8	3740	333	10,3	4740	1844	13,8
760	2209	6,8	1760	1781	13,0	2760	398	10,5	3760	354	10,8	4760	1871	13,3
780	2222	6,0	1780	1755	13,0	2780	377	10,3	3780	376	11,3	4780	1897	13,0
800	2233	5,5	1800	1729	13,3	2800	357	9,8	3800	399	11,5	4800	1923	12,8
820	0·2244	+ 5,3	1820	0·1702	−13,5	2820	0·0338	− 9,5	3820	0·0422	+11,8	4820	0·1948	+12,3
840	2254	5,0	1840	1675	13,8	2840	319	9,5	3840	446	12,3	4840	1972	11,8
860	2264	4,5	1860	1647	14,0	2860	300	9,0	3860	471	12,5	4860	1995	11,5
880	2272	3,8	1880	1619	14,0	2880	283	8,5	3880	496	12,8	4880	2018	11,3
900	2279	3,3	1900	1591	14,0	2900	266	8,3	3900	522	13,3	4900	2040	10,8
920	0·2285	+ 2,8	1920	0·1563	−14,3	2920	0·0250	− 8,0	3920	0·0549	+13,5	4920	0·2061	+10,3
940	2290	2,3	1940	1534	14,3	2940	234	7,5	3940	576	13,8	4940	2081	10,0
960	2294	2,0	1960	1506	14,3	2960	220	7,0	3960	604	14,3	4960	2101	9,8
980	2298	1,8	1980	1477	14,8	2980	206	6,8	3980	633	14,5	4980	2120	9,8
1000	0·2301	+ 1,0	2000	0·1447	−14,8	3000	0·0193	− 6,5	4000	0·0662	+14,8	5000	0·2140	+10,0

Applied Constant: $+0^d{\cdot}1200$.

SATELLITE III

Approximate Tables of Conjunction

IV **Equation of Geocentric Conjunction** **Argument β** **Oc, Tr**

		3			3			3			3
β	Equat n	Δ 1	β	Lquat n	Δ	β	Equat on	Δ 1	β	Equation	Δ 1d
	d						d				
0	−0 4	− 43	**100**	− 2564	+ 6	**200**	−0 0384	+ 29	**300**	+0 1771	+ 6
2	486	43	**102**	551	7	**202**	3 6	29	**302**	178	5
4	571	4	**104**	536	8	**204**	68	29	**304**	1790	4
6	656	42	**106**	5 8	9	**206**	1	9	**306**	1797	3
8	740	42	**108**	2499	10	**208**	153	29	**308**	1801	
10	8 4	4	**110**	479	11	**210**	95	29	**310**	1803	+ 1
12	− 9 7	− 4	**112**	−0 2456	+ 1	**212**	−0 0037	+ 29	**312**	+0 1803	− 1
14	99	41	**114**	43	13	**214**	+ 0	29	**314**	1801	
16	1 71	40	**116**	406	14	**216**	77	28	**316**	1797	3
18	1151	40	**118**	2378	14	**218**	134	29	**318**	1791	4
20	1 30	39	**120**	349	15	**220**	191	28	**320**	1782	5
22	0 13 7	− 38	**122**	−0 2319	+ 16	**222**	+0 0246	+ 28	**322**	+0 1771	− 6
24	383	38	**124**	87	17	**224**	30	8	**324**	1757	7
26	1458	37	**126**	253	17	**226**	358	28	**326**	1742	8
28	153	36	**128**	18	18	**228**	413	27	**328**	17 4	10
30	1600	35	**130**	182	19	**230**	467	27	**330**	1702	11
32	−0 1668	− 34	**132**	− 2144	+ 19	**232**	+0 0521	+ 27	**332**	+0 1679	− 1
34	1734	33	**134**	105	20	**234**	575	7	**334**	1653	14
36	1799	3	**136**	065	0	**236**	628	27	**336**	1625	15
38	1860	30	**138**	2025	1	**238**	681	26	**338**	1594	16
40	19 0	29	**140**	1982	22	**240**	733	26	**340**	1561	17
42	−0 1977	− 28	**142**	−0 1938	+ 22	**242**	+0 0784	+ 25	**342**	+0 1525	− 19
44	032	7	**144**	1894	3	**244**	834	5	**344**	1487	0
46	084	26	**146**	1848	3	**246**	883	25	**346**	1445	21
48	134	5	**148**	18 2	4	**248**	93	4	**348**	1401	2
50	18	23	**150**	1754	4	**250**	980	24	**350**	1356	24
52	−0 26	− 22	**152**	−0 1706	+ 24	**252**	+0 10 7	+ 3	**352**	+0 1307	− 25
54	269	1	**154**	1657	5	**254**	1073	23	**354**	1 56	26
56	2308	19	**156**	16 7	25	**256**	1118	23	**356**	1202	28
58	346	18	**158**	1556	26	**258**	1163	2	**358**	1145	9
60	380	17	**160**	1504	26	**260**	1206	1	**360**	1087	3
62	−0 241	− 15	**162**	−0 1452	+ 6	**262**	+0 1248	+ 21	**362**	+0 1026	− 31
64	441	14	**164**	1399	7	**264**	1288	20	**364**	963	32
66	2468	13	**166**	1346	27	**266**	1327	19	**366**	898	33
68	49	12	**168**	1 9	7	**268**	1365	19	**368**	831	34
70	514	11	**170**	1 37	8	**270**	140	18	**370**	761	35
72	−0 534	− 9	**172**	−0 118	+ 28	**272**	+0 1438	+ 18	**372**	+0 0690	− 36
74	551	8	**174**	11 7	8	**274**	147	17	**374**	616	37
76	565	7	**176**	1 71	8	**276**	1505	16	**376**	54	38
78	577	6	**178**	1015	8	**278**	1536	15	**378**	464	39
80	587	5	**180**	959	28	**280**	1566	15	**380**	386	40
82	−0 2595	− 3	**182**	0 902	+ 29	**282**	+ 1594	+ 14	**382**	+0 0306	− 40
84	6 0		**184**	845	9	**284**	16 1	13	**384**	226	41
86	603	1	**186**	788	29	**286**	1646	1	**386**	144	41
88	603	0	**188**	731	29	**288**	1669	11	**388**	+ 61	42
90	6 3	+ 1	**190**	673	29	**290**	169	10	**390**	− 3	42
92	−0 599	+ 3	**192**	−0 0615	+ 29	**292**	+0 171	+ 10	**392**	−0 0107	− 42
94	593	4	**194**	557	29	**294**	17 8	9	**394**	192	43
96	2585	5	**196**	500	9	**296**	1744	8	**396**	277	43
98	575	5	**198**	44	29	**298**	1759	7	**398**	363	43
100	−0 2564	+ 6	**200**	−0 0384	+ 29	**300**	+0 1771	+ 6	**400**	−0 0448	− 43

Appl d C t t Th Eq ti f T bl IV t d by th f T bl V VI g th An l P ll p whi h m t b ppl d f O lt ti d T t t th t i f th C l m 8 f T bl I d whi h l rv g m t f T bl LXV f mp ti g th ff t f J pit ph

SATELLITE III

Approximate Tables of Conjunction

V Equation of Geocentric Conjunction Arguments α, β Oc., Tr.

α \ β	0d	10d	20d	30d	40d	50d	60d	70d	80d	90d	100d	110d	120d	130d	140d	150d	160d	170d	180d	190d	200d
d 0	300	275	252	231	213	199	188	183	182	185	191	199	210	222	235	247	259	270	281	291	301
100	336	311	286	262	240	221	206	194	187	185	186	190	197	206	216	226	237	247	257	266	276
200	372	347	320	294	268	245	225	208	196	188	183	183	186	191	198	206	216	224	233	242	252
300	406	380	354	326	298	270	245	224	206	193	184	178	177	179	183	189	196	203	211	220	228
400	437	415	387	358	327	297	267	241	219	200	186	176	171	169	170	174	179	184	191	199	207
500	466	445	418	388	356	323	290	260	233	210	191	177	168	162	160	161	164	168	174	180	187
600	492	473	447	417	384	348	313	279	248	221	198	180	167	158	153	151	152	155	159	163	169
700	513	496	472	443	409	373	335	299	265	234	208	186	169	157	149	145	143	144	146	150	155
800	530	516	494	466	433	396	357	319	282	249	219	194	174	159	148	141	138	137	137	140	143
900	542	531	512	486	453	417	378	338	300	264	232	204	181	164	151	141	136	133	132	133	135
1000	549	542	525	501	471	436	397	357	318	280	246	216	191	171	156	145	137	133	130	129	130
1100	551	547	534	513	485	451	414	374	335	297	262	230	204	182	165	151	142	136	132	130	129
1200	547	547	538	520	495	464	428	390	352	314	278	246	218	195	176	161	150	142	137	133	131
1300	539	542	536	522	501	473	440	404	367	330	295	263	234	210	190	174	161	152	146	140	137
1400	525	531	530	520	502	478	449	416	381	346	312	280	251	227	206	189	175	165	157	151	146
1500	507	517	519	513	500	480	455	425	394	361	329	298	270	245	224	207	192	182	172	165	159
1600	484	497	504	502	493	478	457	432	404	374	345	316	289	265	244	226	210	199	189	181	174
1700	457	473	483	486	482	472	454	436	412	386	360	333	308	286	265	248	232	220	210	200	192
1800	427	446	460	466	468	463	452	437	418	397	374	350	328	306	287	270	254	242	231	222	213
1900	394	415	432	444	450	450	445	435	422	405	386	366	346	327	309	293	278	266	255	244	235
2000	360	383	402	418	428	434	435	431	422	411	396	380	364	347	331	316	301	290	278	268	258
2100	324	348	370	389	404	415	422	423	421	414	405	393	380	366	352	338	325	314	303	293	283
2200	288	312	337	359	378	394	406	413	417	415	411	404	394	384	372	360	348	338	328	318	308
2300	252	276	302	327	350	371	388	401	410	414	415	413	407	400	391	381	371	361	351	342	333
2400	217	241	268	295	322	346	368	387	401	411	417	419	417	413	407	400	391	383	374	365	356
2500	183	207	234	263	292	321	347	370	390	405	416	422	425	425	422	417	410	403	396	388	379
2600	152	175	202	232	263	295	325	353	377	397	413	424	430	434	433	431	426	421	415	408	400
2700	125	146	172	202	235	269	302	334	362	387	407	422	433	440	442	442	440	436	431	426	419
2800	100	119	144	174	208	243	279	314	346	375	399	418	433	443	449	451	451	449	446	441	436
2900	80	96	120	148	182	219	257	294	329	361	389	412	429	443	452	457	459	459	457	454	450
3000	65	78	99	127	160	197	236	274	312	346	377	403	424	440	451	459	463	465	465	463	460
3100	55	64	83	109	140	176	216	255	294	330	363	392	416	434	448	458	465	467	469	469	467
3200	50	56	71	94	124	159	197	237	276	314	349	379	405	425	441	453	462	467	469	471	471
3300	50	53	64	85	112	144	181	220	259	297	333	365	392	414	432	446	456	462	467	469	471
3400	55	54	62	79	103	133	168	205	243	281	316	349	377	411	420	435	447	455	461	465	467
3500	65	61	65	78	98	125	157	191	228	264	299	332	360	385	405	421	435	444	451	456	461
3600	81	73	73	82	98	121	149	180	214	249	282	314	342	367	388	405	420	430	438	445	450
3700	100	90	86	90	102	120	144	172	203	235	266	296	324	348	369	387	402	413	422	430	436
3800	125	111	103	103	110	124	143	166	193	221	250	278	305	328	349	367	382	394	404	413	420
3900	153	136	125	120	122	131	145	163	185	210	235	261	285	307	327	345	361	372	383	393	401
4000	184	164	150	141	138	141	150	163	180	200	222	244	266	287	306	322	338	350	361	371	380
4100	217	195	178	165	157	155	158	166	178	193	210	229	248	266	284	300	314	326	337	348	357
4200	252	229	208	192	179	172	169	171	178	188	200	215	231	246	262	277	291	302	313	324	333
4300	288	264	241	221	204	192	183	180	180	185	193	203	215	228	241	254	267	278	289	299	309
4400	325	300	275	252	231	214	200	190	185	185	187	193	201	211	222	232	244	254	264	274	284
4500	360	335	309	283	259	237	218	203	193	187	184	185	189	195	204	213	222	231	241	250	260

The unit in this Table equals $0^d.0001$. Applied Constant: $+0^d.0300$. The entries are all positive.

The Equation of this Table to be added to that of Table IV.

SATELLITE III

Approximate Tables of Conjunction

V continued **Equation of Geocentric Conjunction** **Arguments α β** **Oc, Tr**

α \ β	200d	210d	220d	230d	240d	250d	260d	270d	280d	290d	300d	310d	320d	330d	340d	350d	360d	370d	380d	390d	400d
d																					
0	301	310	3 0	331	34	354	367	379	391	402	410	416	418	417	411	400	385	367	345	3 2	297
100	276	86	96	307	319	333	347	362	376	391	404	415	422	426	4 6	4 1	412	397	379	357	333
200	5	61	271	283	95	310	326	34	360	378	395	411	4 4	433	439	440	435	425	411	391	369
300	8	238	48	259	7	87	3 4	3 2	342	363	384	405	4 3	438	449	455	456	451	440	4 4	403
400	207	15	224	36	249	264	8	302	324	348	37	396	419	439	456	467	473	473	467	454	435
500	187	195	04	14	7	24	61	281	305	331	358	386	413	438	460	476	487	492	490	480	464
600	169	176	184	194	206	1	40	61	85	313	343	374	4 4	433	460	480	497	507	509	503	490
700	155	160	168	177	88	0	0	242	67	295	327	360	393	426	456	483	5 3	517	523	521	512
800	143	148	154	162	172	185	203	2 4	249	278	310	345	381	416	450	480	505	523	533	535	529
900	135	138	143	150	159	171	187	07	232	60	93	329	366	404	440	474	502	524	539	544	542
1000	13	13	135	141	148	159	174	193	16	244	76	312	350	389	428	464	495	5 0	539	548	549
1100	129	1 9	131	135	141	150	163	180	2	229	61	96	334	373	413	450	484	512	534	547	551
1200	131	13	131	133	137	144	156	171	190	15	245	279	316	35,	395	434	469	500	5 4	540	548
1300	137	135	133	134	137	14	151	164	181	03	31	63	298	336	376	414	451	483	509	528	539
1400	146	143	140	139	140	143	149	159	174	193	18	247	8	316	355	392	4 9	462	490	512	526
1500	159	154	150	147	146	147	151	158	170	186	207	33	263	296	33	369	405	438	467	491	508
1600	174	168	163	158	155	154	155	160	168	180	198	20	46	76	309	344	378	411	441	466	486
1700	192	185	179	173	168	165	163	165	169	178	191	209	230	256	86	317	350	381	411	438	459
1800	213	5	197	190	183	178	174	17	173	177	186	200	216	238	263	291	321	350	380	406	429
1900	235	226	18	09	201	194	187	182	180	180	184	192	204	20	241	265	291	318	346	373	397
2000	258	49	240	31	221	21	203	195	189	185	184	187	194	205	0	39	261	286	312	338	363
2100	283	73	64	53	243	231	221	10	00	192	187	184	186	191	201	15	233	54	77	302	327
2200	3 8	298	288	77	65	53	40	6	14	202	19	184	180	180	184	192	205	22	243	266	29
2300	333	3 3	313	301	289	75	60	45	2 9	14	199	187	177	171	169	172	180	193	210	31	54
2400	356	347	337	3 5	31	98	282	264	46	227	8	191	176	165	157	155	158	166	179	197	219
2500	379	370	360	349	336	3 1	304	285	264	24	220	198	178	161	148	140	138	141	151	166	186
2600	40	392	38	372	359	343	325	305	282	258	33	207	183	161	143	129	121	120	125	137	155
2700	419	412	404	39	380	365	346	3 6	3 2	75	247	218	190	163	140	1 2	109	103	104	112	127
2800	436	4 9	4 2	412	399	385	367	346	3 1	293	63	31	199	169	141	118	100	89	86	9	102
2900	450	444	438	4 9	418	404	385	365	339	311	79	245	211	177	145	118	96	80	7	73	82
3000	460	456	45	443	433	4 0	403	38	357	329	96	261	2 4	188	153	122	96	78	65	61	66
3100	467	465	46	456	445	433	418	398	374	345	31	77	239	201	163	1 9	100	77	61	54	55
3200	471	469	466	46	455	444	430	41	389	361	329	93	255	216	177	14	108	8	63	5	50
3300	471	471	469	466	461	45	440	4 3	402	376	345	310	7	33	193	155	121	91	69	55	50
3400	467	468	469	467	463	457	447	432	413	389	360	3 7	290	251	11	173	137	106	81	64	54
3500	461	463	465	465	463	458	450	438	4 2	400	374	343	3 8	270	231	193	156	1 4	97	77	64
3600	450	454	457	459	459	456	451	441	428	410	386	358	3 6	290	253	215	179	146	117	94	80
3700	436	442	446	449	451	451	448	442	431	416	396	372	343	311	275	239	204	171	141	117	99
3800	42	4 6	432	437	441	443	44	439	43	421	405	384	359	331	298	265	231	199	169	143	123
3900	401	408	415	4 1	4 7	431	433	433	43	4 3	411	395	375	350	3 2	29	260	9	199	173	151
4000	380	388	396	404	411	417	42	4 5	425	422	415	404	388	368	344	318	89	26	231	05	181
4100	357	366	375	384	39	4 1	4 8	414	418	419	416	410	400	385	366	344	319	29	265	239	15
4200	333	343	35	36	372	38	392	400	408	413	415	414	409	400	386	369	348	325	30	274	249
4300	309	318	3 8	339	350	361	373	385	396	405	412	416	416	413	4 5	393	377	357	334	310	86
4400	284	94	304	315	327	34	353	367	381	394	406	415	421	4 3	4 1	415	403	388	368	346	322
4500	260	69	279	91	303	317	333	349	366	38	398	412	424	431	435	434	428	417	40	380	358

Tl iti th T bl q l oo Appli d C t t + 300 Th t l ll p iti

Th Eq ti f thi T bl t b dd d t th t f T bl IV

SATELLITE III

Approximate Tables of Conjunction

VI **Equation of Geocentric Conjunction** **Arguments β, γ** **Oc., Tr.**

γ \ β	0^d	20^d	40^d	60^d	80^d	100^d	120^d	140^d	160^d	180^d	200^d	220^d	240^d	260^d	280^d	300^d	320^d	340^d	360^d	380^d	400^d
0^d	100	117	130	138	141	138	131	123	115	107	100	93	85	77	69	62	59	62	71	85	101
20	70	87	106	123	134	140	141	138	133	127	120	113	105	94	82	69	57	50	50	57	71
40	43	60	81	104	124	138	146	149	147	144	139	133	124	113	97	79	60	44	35	35	44
60	23	37	59	85	111	132	146	154	156	156	153	148	141	129	113	92	68	45	28	20	24
80	12	22	41	68	96	121	140	152	159	161	160	158	153	143	127	105	79	52	29	15	12
100	11	15	31	55	82	109	130	145	154	159	161	161	158	151	138	119	93	65	39	20	11
120	21	19	28	47	70	95	116	132	143	150	154	157	157	154	145	129	108	81	55	34	21
140	40	32	34	45	62	82	100	116	127	136	141	146	149	150	146	137	121	100	77	55	40
160	66	53	47	49	58	71	84	97	108	117	123	130	135	140	142	140	133	119	102	82	65
180	96	80	67	60	59	63	71	79	88	96	103	110	118	125	133	139	140	136	126	112	95
200	126	109	91	75	64	60	60	64	69	76	82	89	98	108	120	133	143	148	148	139	125
220	154	137	115	93	74	61	54	52	54	58	63	70	78	90	105	123	141	155	163	162	153
240	175	160	138	112	87	67	54	47	44	45	49	53	61	73	89	110	134	155	172	178	174
260	187	177	157	129	102	77	59	47	41	39	40	43	48	59	75	96	123	149	172	185	187
280	189	185	168	144	116	90	69	54	45	40	39	39	42	49	63	83	109	137	163	182	189
300	181	182	172	152	128	103	82	66	55	48	44	42	42	46	56	72	94	121	147	169	181
320	163	170	167	155	137	117	98	82	70	62	56	52	50	49	54	64	79	102	126	148	163
340	138	150	155	151	142	128	113	100	89	80	74	68	63	59	57	60	69	83	102	121	138
360	108	124	136	142	142	136	128	119	109	101	94	87	80	72	66	61	61	66	77	92	109
380	78	95	113	127	136	140	139	134	128	122	115	108	100	90	78	66	57	53	55	64	78
400	50	67	88	109	127	139	145	146	144	140	134	128	120	108	93	76	59	45	38	40	50

The unit in this Table is $0^d.0001$. Applied Constant: $+0^d.0100$. The sign is positive.

The Equation of this Table to be added to that of Table IV.

SATELLITE III

Approximate Tables of Conjunction

Equations of Conjunction

VII

δ	Equation
	d
00	0 00
2	22
4	5
6	7
8	9
10	31
12	0 003
4	33
6	34
8	34
20	34
22	0 0033
4	3
6	31
8	29
30	7
32	0 0025
4	22
6	0
8	18
40	15
42	0 0013
4	11
6	9
8	8
50	7
52	0 0006
4	6
6	6
8	7
60	8
62	0 0009
4	11
6	13
8	15
70	18
72	0 0020
4	3
6	25
8	27
80	29
82	0 0031
4	3
6	33
8	34
90	34
92	0 0034
4	33
6	32
8	31
100	0 00 9

C t t + ∞

VIII

ϵ	Equation
d	
00	0040
2	34
4	8
6	3
8	18
10	14
12	0 0011
4	8
6	7
8	6
20	7
22	0 008
4	11
6	14
8	19
30	24
32	0 00029
4	35
6	41
8	47
40	52
42	0 0057
4	6
6	67
8	70
50	7
52	0 0074
4	74
6	73
8	71
60	69
62	0 0065
4	61
6	56
8	51
70	45
72	0 0039
4	33
6	27
8	2
80	17
82	0 0013
4	10
6	8
8	6
90	6
92	0 0007
4	9
6	12
8	15
100	0 002

C t t + 004

IX

ζ	Equation
00	0 002
2	18
4	15
6	13
8	11
10	9
12	0 0008
4	7
6	6
8	6
20	6
22	0 0007
4	8
6	9
8	11
30	13
32	0 0015
4	18
6	20
8	23
40	25
42	0 00 7
4	9
6	31
8	32
50	33
52	0 0034
4	34
6	34
8	33
60	32
62	0 0030
4	29
6	7
8	4
70	2
72	0 0019
4	17
6	15
8	13
80	11
82	0 0009
4	8
6	7
8	6
90	6
92	0 006
4	7
6	8
8	10
100	0 0012

C t t + ∞

X

η	Equation
d	d
00	0 00 0
2	23
4	5
6	7
8	28
10	8
12	0 00 7
4	25
6	3
8	20
20	17
22	0 0015
4	13
6	1
8	12
30	13
32	0 0015
4	18
6	20
8	23
40	25
42	0 0027
4	28
6	28
8	27
50	25
52	0 0022
4	20
6	17
8	15
60	13
62	0 0012
4	1
6	13
8	15
70	18
72	0 0021
4	23
6	25
8	27
80	28
82	0 0028
4	27
6	25
8	22
90	19
92	0 0016
4	14
6	13
8	12
100	0 0012

C ta t + ∞

SATELLITE III

Tables

of

Longitude on Jupiter's Orbit, Variation of the Radius Vector, and Latitude

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XI Values at Epoch of Mean Longitude and the Arguments

1	2	3	4	5	6	7	8	9	10	11	12	13
Date	Mean Long.	A	B	C	D	E	F	G	H	I	J	K
	°	d	d	d	d	d	d	d	d	d	d	d
1850·0	346·69972	5·61104	7·110	5·78	2·6522	1·9589	1·54	2·21	4·83	43·22	224	451·85
1851·0	352·64062	3·96283	8·935	5·55	2·7199	2·0632	5·17	5·81	3·79	6·95	188	359·18
*1852·0	358·58151	2·31462	10·761	5·33	2·7875	2·1675	1·86	2·46	2·75	20·85	151	266·50
1853·0	54·84005	1·66641	1·064	6·11	3·8552	3·2718	6·49	0·10	2·71	35·74	116	174·83
1854·0	60·78095	0·01819	2·890	5·88	3·9228	3·3761	3·18	3·70	1·67	49·63	80	82·15
1855·0	66·72185	5·42091	4·715	5·66	3·9905	3·4804	6·81	0·35	0·63	13·37	44	447·15
*1856·0	72·66274	3·77270	6·541	5·44	4·0581	3·5847	3·50	3·95	6·77	27·26	8	354·48
1857·0	128·92128	3·12449	9·367	6·21	5·1258	4·6890	1·18	1·60	6·72	42·16	374	262·80
1858·0	134·86218	1·47628	11·193	5·99	5·1935	4·7934	4·82	5·20	5·68	5·90	338	170·13
1859·0	140·80308	6·87900	0·495	5·77	5·2611	4·8977	1·50	1·85	4·64	19·79	302	77·45
*1860·0	146·74397	5·23078	2·321	5·54	5·3288	5·0020	5·14	5·45	3·60	33·68	265	442·45
1861·0	203·00251	4·58257	5·147	6·31	6·3964	6·1063	2·82	3·10	3·56	48·58	230	350·78
1862·0	208·94341	2·93436	6·973	6·09	6·4641	6·2106	6·46	6·70	2·52	12·31	194	258·10
1863·0	214·88431	1·28615	8·799	5·87	6·5317	6·3149	3·14	3·35	1·48	26·21	158	165·43
*1864·0	220·82520	6·68887	10·624	5·65	6·5994	6·4192	6·78	0·00	0·44	40·10	122	72·75
1865·0	277·08374	6·04066	0·927	6·42	0·5115	0·3687	4·46	4·60	0·40	4·84	87	438·75
1866·0	283·02464	4·39245	2·753	6·20	0·5791	0·4730	1·15	1·25	6·53	18·73	50	346·08
1867·0	288·96554	2·74424	4·579	5·98	0·6468	0·5773	4·78	4·85	5·49	32·63	14	253·40
*1868·0	294·90643	1·09603	6·404	5·75	0·7144	0·6816	1·47	1·50	4·45	46·52	379	160·73
1869·0	351·16497	0·44782	9·230	6·53	1·7821	1·7859	6·10	6·10	4·41	11·26	344	69·06
1870·0	357·10587	5·85053	11·056	6·30	1·8498	1·8902	2·79	2·75	3·37	25·15	308	434·06
1871·0	3·04676	4·20232	0·359	6·08	1·9174	1·9945	6·42	6·35	2·33	39·05	272	341·38
*1872·0	8·98766	2·55411	2·184	5·86	1·9851	2·0988	3·11	2·99	1·29	2·78	236	248·71
1873·0	65·24620	1·90590	5·010	6·63	3·0527	3·2032	0·79	0·64	1·25	17·68	200	157·03
1874·0	71·18710	0·25769	6·836	6·41	3·1204	3·3075	4·43	4·24	0·21	31·57	164	64·36
1875·0	77·12799	5·66041	8·662	6·19	3·1880	3·4118	1·11	0·89	6·34	45·47	128	429·36
*1876·0	83·06889	4·01219	10·488	5·96	3·2557	3·5161	4·75	4·49	5·30	9·20	92	336·68
1877·0	139·32743	3·36398	0·790	6·74	4·3233	4·6204	2·43	2·14	5·26	24·10	57	245·01
1878·0	145·26833	1·71577	2·616	6·51	4·3910	4·7247	6·07	5·74	4·22	37·99	21	152·33
1879·0	151·20922	0·06756	4·442	6·29	4·4586	4·8290	2·75	2·39	3·18	1·73	386	59·66
*1880·0	157·15012	5·47028	6·268	6·07	4·5263	4·9333	6·39	5·99	2·14	15·62	350	424·66
1881·0	213·40866	4·82207	9·093	6·84	5·5939	6·0376	4·07	3·64	2·10	30·51	314	332·98
1882·0	219·34956	3·17386	10·919	6·62	5·6616	6·1419	0·76	0·29	1·06	44·41	278	240·31
1883·0	225·29045	1·52565	0·222	6·39	5·7292	6·2462	4·39	3·89	0·02	8·15	242	147·63
*1884·0	231·23135	6·92836	2·048	6·17	5·7969	6·3505	1·08	0·54	6·15	22·04	206	54·96
1885·0	287·48989	6·28015	4·873	6·95	6·8645	0·3000	5·71	5·14	6·11	36·93	171	420·96
1886·0	293·43079	4·63194	6·699	6·72	6·9322	0·4043	2·40	1·79	5·07	0·67	135	328·28
1887·0	299·37168	2·98373	8·525	6·50	6·9998	0·5086	6·03	5·39	4·03	14·56	98	235·61
*1888·0	305·31258	1·33552	10·351	6·28	7·0675	0·6130	2·72	2·04	2·99	28·46	62	142·93
1889·0	1·57112	0·68731	0·653	7·05	0·9796	1·7173	0·40	6·64	2·95	43·35	27	51·26
1890·0	7·51202	6·09003	2·479	6·83	1·0473	1·8216	4·04	3·29	1·91	7·09	392	416·26
1891·0	13·45291	4·44182	4·305	6·60	1·1149	1·9259	0·72	6·88	0·87	20·98	356	323·58
*1892·0	19·39381	2·79360	6·131	6·38	1·1826	2·0302	4·36	3·53	7·01	34·88	320	230·91
1893·0	75·65235	2·14539	8·957	0·00	2·2502	3·1345	2·04	1·18	6·96	49·77	285	139·23
1894·0	81·59325	0·49718	10·782	6·93	2·3179	3·2388	5·68	4·78	5·92	13·51	249	46·56
1895·0	87·53414	5·89990	0·085	6·71	2·3855	3·3431	2·36	1·43	4·88	27·40	212	411·56
*1896·0	93·47504	4·25169	1·911	6·49	2·4532	3·4474	6·00	5·03	3·84	41·30	176	318·88
1897·0	149·73358	3·60348	4·737	0·10	3·5208	4·5517	3·68	2·68	3·80	6·03	141	227·21
1898·0	155·67448	1·95527	6·562	7·04	3·5885	4·6560	0·37	6·28	2·76	19·93	105	134·53
1899·0	161·61537	0·30706	8·388	6·81	3·6561	4·7603	4·00	2·93	1·72	33·82	69	41·86
1900·0	167·55628	5·70977	10·214	6·59	3·7238	4·8646	0·69	6·53	0·68	47·72	33	406·86
Periods	...	7·05093	12·523	7·16	7·1555	7·1548	6·95	6·95	7·18	50·16	401	457·67

Constant applied to entries in Column 2: $-0°{\cdot}47000$.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XI Values at Epoch of Mean Longitude and the Arguments

4	5	6	7	8	9				3	4	5
L	**M**		**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**
								d	d		d
05 04	53 48	1785 1	**1850 0**	0 63 48	10	889	3 38	5 1475	3 57	6 117	7 0
87 74	132 89	15	**1851 0**	0 749 9	34	3 033	3 50	5 3161	3 9	6 48	5 9
45 74	1 30	515 4	**1852 0**	86710	2 57	3 176	0 05	5 4848	4 8	6 379	4 8
336 44	378 3	881 5	**1853 0**	1 9849	0 3	0 74	1 18	6 6534	5 63	0 355	4 7
19 14	57 71	3 46 5	**1854 0**	1 271	0 47	0 885	1 30	6 8 1	5 99	0 486	3 6
101 83	137 1	3611 7	**1855 0**	2 2 5	71	1 0 9	1 4	6 9907	6 34	0 617	5
466 83	16 53	3976 4	***1856 0**	33833	94	1 17	1 55	0 0 58	6 70	0 748	1 4
350 53	38 53	9 7	**1857 0**	3 45613	2 18	2 315	2 67	1 1745	0 90	1 678	1 3
33 3	61 95	374 6	**1858 0**	3 57394	2 41	2 458	80	1 343	1 26	0 9	0 2
115 93	141 35	739 6	**1859 0**	3 69175	65	601	9	1 5118	1 61	2 140	6 3
480 93	0 76	1104 7	**1860 0**	3 8 956	2 89	2 745	3 05	1 6805	1 97	2 71	5 2
364 63	386 76	147 9	**1861 0**	4 9 736	0 55	0 311	59	8491	3 3	3 402	5 1
247 33	66 17	1836	**1862 0**	5 4517	0 78	0 454	0 72	3 0178	3 68	3 532	4 0
13	145 58	1	**1863 0**	5 16 98	1 02	0 597	0 84	3 1865	4 03	3 663	2 9
7	4 99	566	**1864 0**	5 8079	1 6	0 741	96	3 3551	4 39	3 7)4	1 8
378 72	390 99	931 3	**1865 0**	6 39859	2 49	1 884	2 09	4 5238	5 74	4 9 5	1 8
61 42	270 40	3 95 8	**1866 0**	6 51640	2 73	2 027	2 1	4 6924	6 10	5 055	0 7
144 1	149 81	3659 9	**1867 0**	6 634 1	97	170	2 34	4 8611	6 45	5 186	6 7
6 8	9 22	4024 7	***1868 0**	6 75 02	3 0	2 314	46	5 0297	6 81	5 317	5 7
39 82	395 22	58 1	**1869 0**	715 7	0 86	3 457	0 1	6 1984	1 01	6 448	5 6
275 51	74 63	423 5	**1870 0**	0 83308	1 10	0 0 3	0 13	6 3671	1 37	6 579	4 5
158 21	154 4	789 2	**1871 0**	0 95089	1 34	0 166	0 6	6 5357	1 72	6 7 9	3 4
4 91	33 45	1155 0	**1872 0**	1 6869	1 57	0 309	0 38	6 7044	2 08	6 840	2 3
4 6 91	399 45	15 1 6	**1873 0**	18650	2 81	1 453	1 51	0 7195	3 43	0 817	2 2
89 61	78 86	1886 9	**1874 0**	30431	3 05	1 596	1 63	0 8881	3 79	0 948	1 1
17 31	158 27	2251 8	**1875 0**	4 21	3 28	1 739	1 75	1 0568	4 14	1 078	0 0
55 00	37 68	2616	**1876 0**	2 5399	3 5	1 88	1 88	1 2 55	4 50	1 209	6 1
4 1 00	403 68	981 5	**1877 0**	3 65773	1 18	3 0 6	3 00	3941	5 85	2 340	6 0
303 70	83 09	3345 8	**1878 0**	3 77554	1 4	3 169	3 13	2 5628	6 1	2 471	4 9
186 40	16 51	3710 2	**1879 0**	3 89335	1 65	3 312	3 25	2 7314	6 56	2 602	3 8
69 10	41 9	4075 1	***1880 0**	4 1115	1 89	3 455	3 38	2 9001	6 92	2 732	2 7
435 10	407 9	108 8	**1881 0**	5 12896	3 13	1 0 2	0 92	4 0687	1 12	3 863	2 6
3 7 80	287 33	474 4	**1882 0**	5 4677	3 36	1 165	1 05	4 374	1 48	3 994	1 5
200 49	166 74	84 0	**1883 0**	5 36458	02	1 308	1 17	4 4061	1 83	4 1 4	0 4
83 19	46 15	1 54	**1884 0**	5 48 38	0 6	1 451	1 30	4 5747	2 19	4 256	6 5
449 19	41 15	1571 5	**1885 0**	6 60019	1 50	595	4	5 7434	3 54	5 386	6 4
331 89	91 56	1936 3	**1886 0**	6 71800	1 73	2 738	54	5 9120	3 90	5 517	5 3
214 59	170 97	300 9	**1887 0**	6 83581	1 97	881	67	6 0807	4 5	5 648	4
97 9	50 38	665 5	**1888 0**	6 95361		3 024	2 79	6 494	4 61	5 779	3 1
463 9	416 38	3 31	**1889 0**	0 91687	3 44	0 590	0 34	0 645	5 96	6 910	3 0
345 99	295 79	3396 1	**1890 0**	1 03467	1	0 733	0 46	0 4331	6 32	7 040	2 0
8 68	175 20	3761 4	**1891 0**	1 15 48	0 34	0 877	0 59	6018	6 67	0 017	0 9
111 38	54 61	4126 8	**1892 0**	1 7029	0 57	1 0 0	0 71	0 77 4	7 0	0 148	6 9
477 38	4 0 61	160 6	**1893 0**	38810	1 81	163	1 84	1 9391	1 23	1 78	6 9
36 8	3 0	5 6 0	**1894 0**	5 590	05	2 307	1 96	1078	1 59	1 4 9	5 8
4 78	179 43	891	**1895 0**	2 62371	2 8	2 45	2 09	2764	1 94	1 540	4 7
1 5 48	58 84	1 56 1	***1896 0**	7415	5	2 593	1	2 4451	30	1 671	3 6
9 17	4 4 84	16 1 9	**1897 0**	3 85933	0 18	0 159	3 33	3 6137	3 65	2 802	3 5
374 17	304 25	1986 5	**1898 0**	3 97713	0 4	0 3 3	3 46	3 78 4	4 01	2 932	2 4
56 87	183 66	351 2	**1899 0**	4 09494	0 65	0 446	01	3 9510	4 36	3 063	1 3
139 57	63 07	716 0	**1900 0**	4 1 75	0 89	0 589	0 13	4 1197	4 7	3 194	0 2
48 30	485 59	4332 6	P iods	7 15455	3 58	3 577	3 58	7 1536	7 15	7 154	7 2

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SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XI *continued* Values at Epoch of Mean Longitude and the Arguments

1	2	3	4	5	6	7	8	9	10	11	12	13
Date	Mean Long.	A	B	C	D	E	F	G	H	I	J	K
	°	d	d	d	d	d	d	d	d	d	d	d
1900·0	167·55628	5·70977	10·214	6·59	3·7238	4·8646	0·69	6·53	0·68	47·72	33	406·86
1901·0	173·49718	4·06156	12·040	6·37	3·7915	4·9690	4·32	3·18	6·81	11·45	398	314·19
1902·0	179·43807	2·41335	1·342	6·14	3·8591	5·0733	1·01	6·78	5·77	25·35	361	221·51
1903·0	185·37897	0·76514	3·168	5·92	3·9268	5·1776	4·64	3·43	4·73	39·24	325	128·84
***1904·0**	191·31986	6·16786	4·994	5·69	3·9944	5·2819	1·33	0·08	3·69	2·98	289	36·16
1905·0	247·57841	5·51965	7·820	6·47	5·0621	6·3862	5·96	4·68	3·65	17·87	254	402·16
1906·0	253·51930	3·87144	9·646	6·25	5·1297	6·4905	2·65	1·33	2·61	31·76	218	309·49
1907·0	259·46020	2·22323	11·471	6·02	5·1974	6·5948	6·28	4·93	1·57	45·66	182	216·81
***1908·0**	265·40109	0·57501	0·774	5·80	5·2650	6·6991	2·97	1·58	0·53	9·40	145	124·14
1909·0	321·65964	6·97773	3·600	6·58	6·3327	0·6486	0·66	6·18	0·49	24·29	110	32·46
1910·0	327·60053	5·32952	5·426	6·35	6·4003	0·7529	4·29	2·82	6·62	38·18	74	397·46
1911·0	333·54143	3·68131	7·251	6·13	6·4680	0·8572	0·98	6·42	5·58	1·92	38	304·78
***1912·0**	339·48232	2·03310	9·077	5·90	6·5356	0·9615	4·61	3·07	4·54	15·81	2	212·11
1913·0	35·74087	1·38489	11·903	6·68	0·4478	2·0658	2·30	0·72	4·50	30·71	368	120·44
1914·0	41·68176	6·78760	1·206	6·46	0·5154	2·1701	5·93	4·32	3·46	44·60	332	27·76
1915·0	47·62266	5·13939	3·031	6·23	0·5831	2·2744	2·62	0·97	2·42	8·34	296	392·76
***1916·0**	53·56355	3·49118	4·857	6·01	0·6507	2·3788	6·25	4·57	1·38	22·23	259	300·09
1917·0	109·82210	2·84297	7·683	6·79	1·7184	3·4831	3·94	2·22	1·34	37·13	224	208·41
1918·0	115·76299	1·19476	9·509	6·56	1·7860	3·5874	0·62	5·82	0·30	0·86	188	115·74
1919·0	121·70389	6·59748	11·335	6·34	1·8537	3·6917	4·26	2·47	6·43	14·76	152	23·06
***1920·0**	127·64478	4·94927	0·637	6·11	1·9213	3·7960	0·94	6·07	5·39	28·65	116	388·06
1921·0	183·90332	4·30106	3·463	6·89	2·9890	4·9003	5·58	3·72	5·35	43·55	81	296·39
1922·0	189·84422	2·65285	5·289	6·67	3·0566	5·0046	2·26	0·37	4·31	7·28	44	203·71
1923·0	195·78512	1·00464	7·115	6·44	3·1243	5·1089	5·90	3·97	3·27	21·18	8	111·04
***1924·0**	201·72601	6·40735	8·940	6·22	3·1919	5·2132	2·58	0·62	2·23	35·07	373	18·36
1925·0	257·98455	5·75914	11·766	7·00	4·2596	6·3175	0·27	5·22	2·19	49·97	338	384·36
1926·0	263·92545	4·11093	1·069	6·77	4·3272	6·4218	3·90	1·87	1·15	13·70	302	291·69
1927·0	269·86635	2·46272	2·895	6·55	4·3949	6·5261	0·59	5·47	0·11	27·60	266	199·01
***1928·0**	275·80724	0·81451	4·720	6·32	4·4625	6·6304	4·22	2·12	6·24	41·49	230	106·34
1929·0	332·06578	0·16630	7·546	7·10	5·5302	0·5799	1·91	6·71	6·20	6·23	194	14·66
1930·0	338·00668	5·56901	9·372	6·88	5·5978	0·6842	5·54	3·36	5·16	20·12	158	379·66
1931·0	343·94758	3·92080	11·198	6·65	5·6655	0·7886	2·23	0·01	4·12	34·02	122	286·99
***1932·0**	349·88847	2·27259	0·500	6·43	5·7332	0·8929	5·86	3·61	3·08	47·91	86	194·32
1933·0	46·14701	1·62438	3·326	0·04	6·8008	1·9972	3·55	1·26	3·04	12·65	51	102·64
1934·0	52·08791	7·02710	5·152	6·98	6·8685	2·1015	0·23	4·86	2·00	26·54	15	9·97
1935·0	58·02881	5·37889	6·978	6·76	6·9361	2·2058	3·87	1·51	0·96	40·43	380	374·97
***1936·0**	63·96970	3·73068	8·804	6·53	7·0038	2·3101	0·55	5·11	7·10	4·17	344	282·29
1937·0	120·22824	3·08247	11·629	0·15	0·9159	3·4144	5·19	2·76	7·05	19·06	308	190·62
1938·0	126·16914	1·43426	0·932	7·09	0·9835	3·5187	1·87	6·36	6·01	32·96	272	97·94
1939·0	132·11004	6·83697	2·758	6·86	1·0512	3·6230	5·51	3·01	4·97	46·85	236	5·27
***1940·0**	138·05093	5·18876	4·584	6·64	1·1188	3·7273	2·19	6·61	3·93	10·59	200	370·27
1941·0	194·30947	4·54055	7·409	0·25	2·1865	4·8316	6·82	4·26	3·89	25·48	165	278·59
1942·0	200·25037	2·89234	9·235	0·03	2·2541	4·9359	3·51	0·91	2·85	39·37	129	185·92
1943·0	206·19127	1·24413	11·061	6·97	2·3218	5·0402	0·20	4·51	1·81	3·11	92	93·24
***1944·0**	212·13216	6·64685	0·364	6·74	2·3895	5·1446	3·83	1·16	0·77	17·01	56	0·57
1945·0	268·39070	5·99864	3·189	0·36	3·4571	6·2489	1·52	5·76	0·73	31·90	21	366·57
1946·0	274·33159	4·35042	5·015	0·14	3·5248	6·3532	5·15	2·41	6·86	45·80	386	273·89
1947·0	280·27250	2·70221	6·841	7·07	3·5924	6·4575	1·84	6·01	5·82	9·53	350	181·22
***1948·0**	286·21339	1·05400	8·667	6·85	3·6601	6·5618	5·47	2·65	4·78	23·43	314	88·54
1949·0	342·47193	0·40579	11·493	0·46	4·7277	0·5113	3·16	0·30	4·74	38·32	279	454·54
1950·0	348·41283	5·80851	0·795	0·24	4·7954	0·6156	6·79	3·90	3·70	2·06	243	361·87
Periods	...	7·05093	12·523	7·16	7·1555	7·1548	6·95	6·95	7·18	50·16	401	457·67

Constant applied to entries in Column 2: −0°·47000.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XI *continued* **Values at Epoch of Mean Longitude and the Arguments**

4	5	6	7	8	9				3	4	5
L	**M**	α	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**
d					d			d	d	d	d
139 57	63 7	716	**1900 0**	4 1 75	0 89	0 589	0 13	4 1197	4 72	3 194	0 2
7	4 8 07	308 1	**1901 0**	4 33 56	1 13	73	0 25	4 2884	5 08	3 325	6 3
387 7	307 48	3446 4	**1902 0**	4 44837	1 36	875	38	4 457	5 43	3 456	5 2
69 97	186 89	3811 6	**1903 0**	4 56617	1 60	1 019	0 50	4 6 57	5 79	3 586	4 1
15 66	66 3	4176 6	**1904 0**	4 68398	1 84	1 16	0 63	4 7943	6 14	3 717	3
36 36	432 3	209 9	**1905 0**	5 8 179	3 7	2 305	1 75	5 963	0 35	4 848	9
401 36	311 71	574 7	**1906 0**	5 9196	3 31	2 448	1 88	6 1316	0 70	4 979	1 8
84 06	191 12	939 5	**1907 0**	6 03740	3 55	592	2 00	6 30 3	1 06	5 110	0 7
166 76	7 53	13 4 4	***1908 0**	6 155 1	1	2 735	12	6 4690	1 41	5 240	6 8
50 46	436 53	167 4	**1909 0**	0 11846	1 44	0 301	3 25	0 4841	2 77	6 371	6 7
415 46	315 94	35 4	**1910 0**	3627	1 68	0 444	3 37	0 6527	3 12	6 502	5 6
298 15	195 35	4 0 6	**1911 0**	0 35408	1 92	0 588	3 50	0 8 14	3 48	6 633	4 5
18 85	74 76	765 7	**1912 0**	0 47189	15	0 731	0 04	0 9900	3 83	6 764	3 4
64 55	440 76	3131 8	**1913 0**	1 58969	3 39	1 874	1 17	2 1587	5 1)	0 740	3 3
4 9 55	32 17	3496 8	**1914 0**	1 7075	0 5	017	1 29	3 74	5 54	0 871	3
31 25	199 58	3861 6	**1915 0**	1 82531	0 8	2 161	1 42	4960	5 90	1 00	1 2
194 95	78 99	4 6 4	***1916 0**	1 9431	0 5	2 304	1 54	2 6647	6 25	1 132	0 1
78 65	444 99	59 5	**1917 0**	3 609	1 76	3 447	67	3 8333	0 46	2 63	7 1
443 65	324 40	6 4 5	**1918 0**	3 17873	1 99	0 013	79	4 0020	0 81	2 394	6 1
3 6 34	3 81	989 6	**1919 0**	3 29654	2 23	0 156	2 91	4 1707	1 17	2 5 5	5 0
09 04	83 2	1354 8	**1920 0**	3 41435	47	0 300	3 04	4 3393	1 52	2 656	3 9
9 74	449	1721 1	**1921 0**	4 53215	0 13	1 443	0 59	5 5080	2 88	3 786	3 8
457 74	3 8 63	86 5	**1922 0**	4 64996	0 36	1 586	0 71	5 6766	3 23	3 917	2 7
340 44	08 05	451 1	**1923 0**	4 76777	0 60	1 7 9	0 83	5 8453	3 59	4 048	1 6
2 3 14	87 46	816 0	***1924 0**	4 88558	84	1 873	0 96	6 0139	3 94	4 179	0 5
106 83	453 46	3181 3	**1925 0**	6 0 338	7	3 016	2 8	0 0 90	5 30	5 310	0 4
471 83	33 87	3545 5	**1926 0**	6 1 119	31	3 159	21	0 1977	5 65	5 44	6 5
354 53	21 8	3909 8	**1927 0**	6 390	2 55	3 302	33	0 3664	6 01	5 571	5 4
37 3	91 69	4 74 5	***1928 0**	6 35681	78	3 446	2 46	5350	6 36	5 702	4 3
1 0 93	457 69	3 8 0	**1929 0**	0 3 0 6	0 44	1 01	0 00	1 7037	0 57	6 833	4 2
3 63	337 10	673 6	**1930 0**	0 43787	0 68	1 155	0 13	1 8723	0 92	6 964	3 1
368 63	16 51	1039 3	**1931 0**	0 55568	0 92	1 298	0 25	0410	1 28	7 094	2 0
51 3	95 9	14 5 0	***1932 0**	0 67348	1 15	1 441	38	2 2097	1 63	0 071	0 9
135 0	461 9	1771 6	**1933 0**	1 791 9	2 39	2 585	1 50	3 3783	2 99	1 202	0 8
17 7	341 33	2136 8	**1934 0**	1 9 910	63	728	1 62	3 5470	3 34	1 333	6 9
38 7	74	501 6	**1935 0**	2691	86	2 871	1 75	3 7156	3 70	1 463	5 8
65 4	1 0 15	2866 0	**1936 0**	14471	3 1	3 014	1 87	3 8843	4 05	1 594	4 7
149 1	466 15	3231	**1937 0**	3 625	76	0 581	3 00	5 05 9	5 41	2 725	4 6
3 81	345 56	3595 4	**1938 0**	3 38033	1 0	7 4	3 1	5 16	5 76	2 856	3 5
396 81	4 97	396 0	**1939 0**	3 49814	1 3	0 867	3 5	5 3903	6 12	2 986	2 5
279 51	104 38	4324 9	***1940 0**	3 61594	1 47	1 010	3 37	5 5 89	6 47	3 117	1 4
163 1	47 38	358 7	**1941 0**	4 73375	7	154	0 9	6 7276	68	4 48	1 3
45 91	349 79	7 4 3	**1942 0**	4 85156	2 94	297	1 4	6 8962	1 3	4 379	0 2
41 91	9	1089 8	**1943 0**	4 96937	3 18	440	1 16	7 0649	1 39	4 510	6 3
93 61	108 61	1455 1	**1944 0**	5 08717	3 41	2 583	1 29	0 800	1 74	4 640	5 2
177 31	474 61	1821 1	**1945 0**	6 498	1 07	0 149	2 41	1 487	3 10	5 771	5 1
6 0	354 01	1859	**1946 0**	6 32278	1 31	0 93	2 54	1 4173	3 45	5 902	4 0
425 00	33 43	550 5	**1947 0**	6 44060	1 55	0 436	2 66	1 586	3 81	6 033	9
307 70	11 84	915	***1948 0**	6 5584	1 78	0 579	2 79	1 7546	4 16	6 164	1 8
191 40	478 84	3 81	**1949 0**	52166	3 0	1 7	0 33	9 33	5 52	0 140	1 7
74 1	358 5	3646	**1950 0**	0 63947	3 6	1 866	0 46	3 0919	5 87	0 71	0 6
48 3	485 59	433 6	P ods	7 15455	3 58	3 577	3 58	7 1536	7 15	7 154	7 2

T bt tl T L git d d dt J pit O bt th t i f C l m m tb ppl m t d by tl q ti f T bl XII XXXII

Tables of Longitude, Latitude, and Radius Vector

XI *continued* Values at Epoch of Mean Longitude and the Arguments

1	2	3	4	5	6	7	8	9	10	11	12	13
Date	Mean Long.	A	B	C	D	E	F	G	H	I	J	K
	°	d	d	d	d	d	d	d	d	d	d	d
1950·0	348·41283	5·80851	0·795	0·24	4·7954	0·6156	6·79	3·90	3·70	2·06	243	361·87
1951·0	354·35373	4·16030	2·621	0·02	4·8630	0·7199	3·48	0·55	2·66	15·95	206	269·19
***1952·0**	0·29462	2·51209	4·447	6·95	4·9307	0·8242	0·16	4·15	1·62	29·85	170	176·52
1953·0	56·55316	1·86388	7·273	0·57	5·9983	1·9285	4·80	1·80	1·58	44·74	135	84·84
1954·0	62·49406	0·21567	9·098	0·34	6·0660	2·0328	1·48	5·40	0·54	8·48	99	449·84
1955·0	68·43496	5·61838	10·924	0·12	6·1336	2·1371	5·12	2·05	6·67	22·37	63	357·17
***1956·0**	74·37585	3·97017	0·227	7·06	6·2013	2·2414	1·80	5·65	5·63	36·27	27	264·49
1957·0	130·63439	3·32196	3·053	0·67	0·1134	3·3457	6·44	3·30	5·59	1·00	393	172·82
1958·0	136·57529	1·67375	4·878	0·45	0·1811	3·4500	3·12	6·90	4·55	14·90	356	80·14
1959·0	142·51618	0·02554	6·704	0·22	0·2487	3·5544	6·76	3·55	3·51	28·79	320	445·14
***1960·0**	148·45708	5·42826	8·530	0·00	0·3164	3·6587	3·44	0·20	2·47	42·68	284	352·47
1961·0	204·71562	4·78005	11·356	0·78	1·3840	4·7630	1·13	4·80	2·43	7·42	249	260·79
1962·0	210·65652	3·13183	0·658	0·55	1·4517	4·8673	4·76	1·45	1·39	21·31	213	168·12
1963·0	216·59741	1·48362	2·484	0·33	1·5193	4·9716	1·45	5·05	0·35	35·21	177	75·45
***1964·0**	222·53831	6·88634	4·310	0·11	1·5870	5·0759	5·08	1·70	6·48	49·10	140	440·45
1965·0	278·79685	6·23813	7·136	0·88	2·6546	6·1802	2·77	6·30	6·44	13·84	105	348·77
1966·0	284·73775	4·58992	8·962	0·66	2·7223	6·2845	6·40	2·95	5·40	27·73	69	256·10
1967·0	290·67864	2·94171	10·787	0·43	2·7899	6·3888	3·09	6·54	4·36	41·63	33	163·42
***1968·0**	296·61954	1·29350	0·090	0·21	2·8576	6·4931	6·72	3·19	3·32	5·36	398	70·75
1969·0	352·87808	0·64529	2·916	0·99	3·9252	0·4426	4·41	0·84	3·28	20·26	363	436·75
1970·0	358·81898	6·04800	4·742	0·76	3·9929	0·5469	1·09	4·44	2·24	34·15	327	344·07
1971·0	4·75987	4·39979	6·567	0·54	4·0605	0·6512	4·73	1·09	1·20	48·05	291	251·40
***1972·0**	10·70077	2·75158	8·393	0·32	4·1282	0·7555	2·41	4·69	0·16	11·78	254	158·72
1973·0	66·95931	2·10337	11·219	1·09	5·1958	1·8598	6·05	2·34	0·12	26·68	219	67·05
1974·0	72·90021	0·45516	0·522	0·87	5·2635	1·9641	2·73	5·94	6·25	40·57	183	432·05
1975·0	78·84110	5·85788	2·347	0·64	5·3312	2·0685	6·37	2·59	5·21	4·31	147	339·37
***1976·0**	84·78200	4·20967	4·173	0·41	5·3988	2·1728	3·05	6·19	4·17	18·20	111	246·70
1977·0	141·04054	3·56146	6·999	1·20	6·4665	3·2771	0·74	3·84	4·13	33·10	76	155·02
1978·0	146·98144	1·91324	8·825	0·97	6·5341	3·3814	4·37	0·49	3·09	46·99	39	62·35
1979·0	152·92233	0·26503	10·651	0·75	6·6018	3·4857	1·06	4·09	2·05	10·73	3	427·35
***1980·0**	158·86323	5·66775	12·476	0·52	6·6694	3·5900	4·69	0·74	1·01	24·62	368	334·67
1981·0	215·12177	5·01954	2·779	1·30	0·5815	4·6943	2·38	5·34	0·97	39·52	333	243·00
1982·0	221·06267	3·37133	4·605	1·08	0·6492	4·7986	6·01	1·99	7·10	3·25	297	150·32
1983·0	227·00356	1·72312	6·431	0·85	0·7168	4·9029	2·70	5·59	6·06	17·15	261	57·65
***1984·0**	232·94446	0·07491	8·256	0·63	0·7845	5·0072	6·33	2·24	5·02	31·04	225	422·65
1985·0	289·20300	6·47762	11·082	1·41	1·8521	6·1115	4·02	6·84	4·98	45·93	189	330·97
1986·0	295·14390	4·82941	0·385	1·18	1·9198	6·2158	0·70	3·49	3·94	9·67	153	238·30
1987·0	301·08479	3·18120	2·211	0·96	1·9874	6·3202	4·34	0·13	2·90	23·57	117	145·62
***1988·0**	307·02569	1·53299	4·036	0·73	2·0551	6·4245	1·02	3·73	1·86	37·46	81	52·95
1989·0	3·28423	0·88478	6·862	1·51	3·1228	0·3739	5·66	1·38	1·82	2·20	46	418·95
1990·0	9·22513	6·28750	8·688	1·29	3·1904	0·4783	2·34	4·98	0·78	16·09	10	326·27
1991·0	15·16602	4·63929	10·514	1·06	3·2581	0·5826	5·98	1·63	6·91	29·98	375	233·60
***1992·0**	21·10692	2·99108	12·340	0·84	3·3257	0·6869	2·66	5·23	5·87	43·88	339	140·92
1993·0	77·36546	2·34287	2·642	1·61	4·3934	1·7912	0·35	2·88	5·83	8·61	303	49·25
1994·0	83·30636	0·69465	4·468	1·39	4·4610	1·8955	3·98	6·48	4·79	22·51	267	414·25
1995·0	89·24725	6·09737	6·294	1·17	4·5287	1·9998	0·67	3·13	3·75	36·40	231	321·58
***1996·0**	95·18815	4·44916	8·120	0·94	4·5963	2·1041	4·30	6·73	2·71	0·14	195	228·90
1997·0	151·44669	3·80095	10·945	1·72	5·6640	3·2084	1·99	4·38	2·67	15·03	160	137·23
1998·0	157·38759	2·15274	0·248	1·50	5·7316	3·3127	5·62	1·03	1·63	28·93	124	44·55
1999·0	163·32848	0·50453	2·074	1·27	5·7993	3·4170	2·31	4·63	0·59	42·82	87	409·55
***2000·0**	169·26939	5·90724	3·900	1·05	5·8669	3·5213	5·94	1·28	6·72	6·56	51	316·88
Periods	...	7·05093	12·523	7·16	7·1555	7·1548	6·95	6·95	7·18	50·16	401	457·67

Constant applied to entries in Column 2: −0°·47000.

Tables of Longitude, Latitude, and Radius Vector

XI *continued* **Values at Epoch of Mean Longitude and the Arguments**

4	5	6	7	8	9				3	4	5
L	**M**	α	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**
d				d	d						d
74 10	358 5	3646 0	**1950 0**	0 63947	3 6	1 866	0 46	3 0919	5 87	0 71	0 6
439 10	37 66	4 11 3	**1951 0**	0 757 7	3 49	009	58	3 606	6 23	0 40	6 7
3 1 80	117 7	44 0	**1952 0**	87508	0 15	2 15	0 71	3 4 93	6 58	0 533	5 6
205 49	483 07	410 4	**1953 0**	1 99 89	1 39	3 95	1 83	4 5979	0 79	1 663	5 5
88 19	36 48	775 6	**1954 0**	11070	1 63	3 439	1 95	4 7666	1 14	1 794	4 4
453 19	41 89	1140 7	**1955 0**	850	1 86	0 005	2 08	3 9352	1 50	1 925	3 3
335 89	121 3	1505 6	***1956 0**	2 34631	2 10	0 148	20	5 1039	1 85	2 056	2
219 59	1 71	1871 4	**1957 0**	3 4641	3 34	1 291	3 33	6 726	3 21	3 187	2 1
102 29	366 71	2 36 0	**1958 0**	3 58193	0 00	1 435	3 45	6 4412	3 56	3 317	1 0
467 9	46 1	2600 8	**1959 0**	3 69973	0 23	1 578	0 00	6 6099	3 9	3 448	7 1
349 98	1 5 53	965 8	**1960 0**	3 81754	0 47	1 721	0 12	6 7785	4 27	3 579	6 0
33 68	5 94	333 0	**1961 0**	4 93535	1 71	2 864	1 5	0 7936	5 63	4 710	5 9
116 38	370 94	3697	**1962 0**	5 5316	1 94	3 007	1 37	0 96 3	5 98	4 841	4 8
481 38	50 35	4062 3	**1963 0**	5 17096	18	3 151	1 50	1 1310	6 34	4 971	3 7
364 08	1 9 76	96 7	***1964 0**	5 8877	42	3 94	1 6	1 2996	6 69	5 10	2 7
247 78	10 17	460 5	**1965 0**	6 40658	0 08	0 860	2 74	2 4683	0 90	6 33	2 6
130 48	375 17	8 5 3	**1966 0**	6 5 439	0 31	1 003	2 87	2 6369	1 5	6 364	1 5
13 17	54 59	1190 3	**1967 0**	6 64219	0 55	1 147	2 99	8056	1 61	6 495	0 4
378 17	134 00	1555	**1968 0**	6 76000	0 79	1 90	3 1	2 9742	1 96	6 6 5	6 5
61 87	14 41	19 1 1	**1969 0**	0 723 6	2 02	433	0 66	4 14 9	3 32	0 602	6 4
144 57	379 41	86 3	**1970 0**	0 84106	26	576	0 79	4 3116	3 67	0 733	5 3
27 7	258 8	2651 5	**1971 0**	0 95887	2 49	2 720	0 91	4 4802	4 03	0 863	4 2
39 7	138 3	3016 6	***1972 0**	1 07668	73	863	1 04	4 6489	4 38	0 994	3 1
75 97	18 64	3382 7	**1973 0**	2 19449	0 39	0 4 9	16	5 8175	5 74	2 1 5	3 0
158 66	383 64	3747 5	**1974 0**	31 9	0 63	0 572	9	5 986	6 09	2 256	1 9
41 36	63 05	4112 2	**1975 0**	43010	0 86	715	2 41	6 1548	6 45	2 387	0 8
406 36	142 46	144 4	***1976 0**	54791	1 10	0 859	53	6 3 35	6 80	2 517	6 9
290 06	87	510 8	**1977 0**	3 6657	34	2 00	0 08	0 3386	1 01	3 648	6 8
17 76	387 87	875 1	**1978 0**	3 7835	57	145	0 1	0 5073	1 36	3 779	5 7
55 46	267 28	1 40 2	**1979 0**	3 90133	81	88	0 33	0 6759	1 7	3 910	4 6
420 46	146 69	1605 6	**1980 0**	4 1914	3 05	432	0 45	0 8446	07	4 041	3 5
304 15	7 10	197 0	**1981 0**	5 13695	0 71	3 575	1 58	2 0132	3 43	5 171	3 4
186 85	39 10	237 3	**1982 0**	5 5475	0 94	0 141	1 70	1819	3 79	5 30	3
69 55	71 51	70 2	**1983 0**	5 37256	1 18	0 284	1 83	2 3506	4 14	5 433	1 2
434 55	150 9	3 66 6	***1984 0**	5 49 37	1 42	0 4 8	1 95	2 5192	4 49	5 564	0 1
318 25	31 33	3431 9	**1985 0**	6 6 818	65	1 571	3 08	3 6879	5 86	6 695	0 1
2 0 95	396 33	3796 0	**1986 0**	6 7 598	2 89	1 714	3 20	3 8565	6 1	6 825	6 1
83 64	75 74	4160 3	**1987 0**	6 84379	3 13	1 857	3 3	4 0 5	6 56	6 956	5 0
448 64	155 15	192 6	**1988 0**	6 96160	3 36	001	3 45	4 1939	6 92	7 087	4 0
33 34	35 56	558 8	**1989 0**	0 92485	1 0	3 144	1 00	5 36 5	1 12	1 063	3 9
15 04	40 56	924 3	**1990 0**	1 04266	1 6	3 87	1 12	5 531	1 48	1 194	2 8
97 74	79 97	1 9 1	**1991 0**	1 16047	1 5	3 430	1 24	5 6998	1 83	1 3 5	1 7
46 74	159 38	1655 8	***1992 0**	1 78 8	1 73	3 573	1 37	5 8685	2 19	1 456	0 6
346 44	39 79	20 3	**1993 0**	39608	97	1 140	2 49	7 0372	3 54	2 587	0 5
9 14	4 4 79	387 4	**1994 0**	51389	3 1	1 283	6	0 052	3 90	2 717	6 6
111 83	284	275 1	**1995 0**	2 63170	3 44	1 4 6	2 74	0 2 09	4 25	848	5 5
476 83	163 61	3116 4	***1996 0**	2 74951	0 10	1 569	87	0 3896	4 61	2 979	4 4
360 53	44 02	3481 6	**1997 0**	3 86731	1 34	713	0 41	1 5582	5 96	4 110	4 3
43 3	409 02	3845 9	**1998 0**	3 98512	1 57	2 856	0 54	1 7 69	6 3	4 41	3
125 93	88 43	4 10 5	**1999 0**	4 10 93	1 81	2 999	0 66	1 8955	6 67	4 371	2 1
8 63	167 84	4 9	***2000 0**	4 074	2 05	3 142	0 79	2 0642	7 03	4 502	1 0
482 30	485 59	433 6	Per ods	7 15455	3 58	3 577	3 58	7 1536	7 15	7 154	7 2

T bt i th Tru L git d d dt J p t O bit th t i f C l m m t b ppl m t d by th q i f T bl XII XXXII

Tables of Longitude, Latitude, and Radius Vector

XII Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8	9	10	11	12
Day	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**—α
	°	d	d	d	d	d	d	d	d	d	d
Jan. 1	50·31765	1·00000	1·000	1·00	1·0000	1·0000	1·00	1·00	1·00	1·00	1·00
2	100·63529	2·00000	2·000	2·00	2·0000	2·0000	2·00	2·00	2·00	2·00	2·00
3	150·95294	3·00000	3·000	3·00	3·0000	3·0000	3·00	3·00	3·00	3·00	3·00
4	201·27059	4·00000	4·000	4·00	4·0000	4·0000	4·00	4·00	4·00	4·00	4·00
5	251·58823	5·00000	5·000	5·00	5·0000	5·0000	5·00	5·00	5·00	5·00	5·00
6	301·90588	6·00000	6·000	6·00	6·0000	6·0000	6·00	6·00	6·00	6·00	6·00
7	352·22352	7·00000	7·000	7·00	7·0000	7·0000	0·05	0·05	7·00	7·00	7·00
8	42·54117	0·94907	8·000	0·84	0·8445	0·8452	1·05	1·05	0·82	8·00	8·00
9	92·85882	1·94907	9·000	1·84	1·8445	1·8452	2·05	2·05	1·82	9·00	9·00
10	143·17646	2·94907	10·000	2·84	2·8445	2·8452	3·05	3·05	2·82	10·00	10·00
11	193·49411	3·94907	11·000	3·84	3·8445	3·8452	4·05	4·05	3·82	11·00	11·00
12	243·81176	4·94907	12·000	4·84	4·8445	4·8452	5·05	5·05	4·82	12·00	12·00
13	294·12940	5·94907	0·477	5·84	5·8445	5·8452	6·05	6·05	5·82	13·00	13·00
14	344·44705	6·94907	1·477	6·84	6·8445	6·8452	0·10	0·10	6·82	14·00	14·00
15	34·76469	0·89815	2·477	0·68	0·6889	0·6904	1·10	1·10	0·65	15·00	15·00
16	85·08234	1·89815	3·477	1·68	1·6889	1·6904	2·10	2·10	1·65	16·00	16·00
17	135·39999	2·89815	4·477	2·68	2·6889	2·6904	3·10	3·10	2·65	17·00	17·00
18	185·71763	3·89815	5·477	3·68	3·6889	3·6904	4·10	4·10	3·65	18·00	18·00
19	236·03528	4·89815	6·477	4·68	4·6889	4·6904	5·10	5·10	4·65	19·00	19·00
20	286·35293	5·89815	7·477	5·68	5·6889	5·6904	6·10	6·10	5·65	20·00	20·00
21	336·67057	6·89815	8·477	6·68	6·6889	6·6904	0·15	0·15	6·65	21·00	21·00
22	26·98822	0·84722	9·477	0·52	0·5334	0·5356	1·15	1·15	0·47	22·00	22·00
23	77·30586	1·84722	10·477	1·52	1·5334	1·5356	2·15	2·15	1·47	23·00	23·00
24	127·62351	2·84722	11·477	2·52	2·5334	2·5356	3·15	3·15	2·47	24·00	24·00
25	177·94116	3·84722	12·477	3·52	3·5334	3·5356	4·15	4·15	3·47	25·00	25·00
26	228·25880	4·84722	0·954	4·52	4·5334	4·5356	5·15	5·15	4·47	26·00	26·00
27	278·57645	5·84722	1·954	5·52	5·5334	5·5356	6·15	6·15	5·47	27·00	27·00
28	328·89410	6·84722	2·954	6·52	6·5334	6·5356	0·20	0·20	6·47	28·00	28·00
29	19·21174	0·79629	3·954	0·35	0·3779	0·3807	1·20	1·20	0·29	29·00	29·00
30	69·52939	1·79629	4·954	1·35	1·3779	1·3807	2·20	2·20	1·29	30·00	30·00
31	119·84703	2·79629	5·954	2·35	2·3779	2·3807	3·20	3·20	2·29	31·00	31·00
Feb. 1	170·16468	3·79629	6·954	3·35	3·3779	3·3807	4·20	4·20	3·29	32·00	32·00
2	220·48233	4·79629	7·954	4·35	4·3779	4·3807	5·20	5·20	4·29	33·00	33·00
3	270·79997	5·79629	8·954	5·35	5·3779	5·3807	6·20	6·20	5·29	34·00	34·00
4	321·11762	6·79629	9·954	6·35	6·3779	6·3807	0·25	0·25	6·29	35·00	35·00
5	11·43527	0·74536	10·954	0·19	0·2223	0·2259	1·25	1·25	0·11	36·00	36·00
6	61·75291	1·74536	11·954	1·19	1·2223	1·2259	2·25	2·25	1·11	37·00	37·00
7	112·07056	2·74536	0·430	2·19	2·2223	2·2259	3·25	3·25	2·11	38·00	38·00
8	162·38821	3·74536	1·430	3·19	3·2223	3·2259	4·25	4·25	3·11	39·00	39·00
9	212·70585	4·74536	2·430	4·19	4·2223	4·2259	5·25	5·25	4·11	40·00	40·00
10	263·02350	5·74536	3·430	5·19	5·2223	5·2259	6·25	6·25	5·11	41·00	41·00
11	313·34114	6·74536	4·430	6·19	6·2223	6·2259	0·30	0·30	6·11	42·00	42·00
12	3·65879	0·69444	5·430	0·03	0·0668	0·0711	1·30	1·30	7·11	43·00	43·00
13	53·97644	1·69444	6·430	1·03	1·0668	1·0711	2·30	2·30	0·94	44·00	44·00
14	104·29408	2·69444	7·430	2·03	2·0668	2·0711	3·30	3·30	1·94	45·00	45·00
15	154·61173	3·69444	8·430	3·03	3·0668	3·0711	4·30	4·30	2·94	46·00	46·00
16	204·92938	4·69444	9·430	4·03	4·0668	4·0711	5·30	5·30	3·94	47·00	47·00
17	255·24702	5·69444	10·430	5·03	5·0668	5·0711	6·30	6·30	4·94	48·00	48·00
18	305·56467	6·69444	11·430	6·03	6·0668	6·0711	0·35	0·35	5·94	49·00	49·00
19	355·88231	0·64351	12·430	7·03	7·0668	7·0711	1·35	1·35	6·94	50·00	50·00
20	46·19996	1·64351	0·907	0·87	0·9112	0·9163	2·35	2·35	0·76	0·84	51·00
21	96·51761	2·64351	1·907	1·87	1·9112	1·9163	3·35	3·35	1·76	1·84	52·00
22	146·83525	3·64351	2·907	2·87	2·9112	2·9163	4·35	4·35	2·76	2·84	53·00

In Leap Year diminish the date in Columns 1, 13, by 1 day after Feb. 28.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XII Motions of Mean Longitude and the Arguments for Days

3	4	5	6	7	8	9			
Day	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**
				d	d			d	d
Jan 1	0	1 00	1 0	1 000	1 00	1 00 0	1 00	1 000	1 0
2	0	0000	00	000	0	0000	2 0	000	0
3	0	3 0	3 00	3 0 0	3 0	3 000	3 00	3 00	3 0
4	0 0	4 000	42	0 423	0 4	4 0	4 00	4 0 0	4 0
5	0	5 00 0	1 4	1 4 3	1 42	5 0000	5 00	5 0	5 0
6	0 0	6 0000	4	4 3	42	6 000	6 00	6 000	6
7	0 0	7 0000	3 4	3 4 3	3 4	7 000	7 0	7 00	7 0
8	0 0	0 84545	0 85	0 846	0 85	0 8464	0 85	0 846	0 8
9	0 0	1 84545	1 85	1 846	1 85	1 8464	1 85	1 846	1 8
10	0 0	2 84545	85	846	2 85	2 8464	85	2 846	2 8
11	0 0	3 84545	0 7	0 269	0 27	3 8464	3 85	3 846	3 8
12	0 0	4 84545	1 7	1 69	1 27	4 8464	4 85	4 846	4 8
13	0 0	5 84545	7	69	2 27	5 8464	5 85	5 846	5 8
14	0	6 84545	3 27	3 69	3 7	6 8464	6 85	6 846	6 8
15	0	69089	70	69	0 69	0 6929	0 70	0 691	0 6
16	0	1 69089	1 70	1 692	1 (9	1 6) 9	1 70	1 691	1 6
17	0	69 89	70	69	6)	692)	70	2 691	2 6
18	0 0	3 69089	0 1	0 115	0 11	3 (9 9	3 70	3 691	3 6
19	1	4 69089	1 1	1 115	1 11	4 69 9	4 70	4 691	4 6
20	1	5 69089	1	2 115	2 11	5 69 9	5 70	5 691	5 6
21	0 1	6 69089	3 1	3 115	3 11	6 6929	6 70	6 691	6 6
22	0 1	0 53634	0 54	0 538	54	0 5393	0 55	0 537	0 5
23	1	1 53634	1 54	1 538	1 54	1 5393	1 55	1 537	1 5
24	0 1	53634	54	538	2 54	5393	2 55	537	2 5
25	0 1	3 53634	3 54	3 538	3 54	3 5393	3 55	3 537	3 5
26	0 1	4 53634	97	0 961	0 96	4 5393	4 55	4 537	4 5
27	0 1	5 53634	1 97	1 961	1 96	5 5393	5 55	5 537	5 5
28	0 1	6 53634	2 97	2 961	)6	6 5393	6 55	6 537	6 5
29	0 1	0 38179	0 39	0 384	0 38	0 3858	40	0 383	0 3
30	0 1	1 38179	1 39	1 384	1 38	1 3858	1 40	1 383	1 3
31	1	2 38179	39	2 384	38	2 3858	2 40	2 383	2 3
Feb 1	0 1	3 38179	3 39	3 384	3 38	3 3858	3 40	3 383	3 3
2	1	4 38 79	0 81	0 8 7	0 81	4 3858	4 40	4 383	4 3
3	0 1	5 38179	1 81	1 807	1 81	5 3858	5 40	5 383	5 3
4	0 1	6 38179	2 81	807	81	6 3858	6 40	6 383	6 3
5	0 1	0 7 4	0 4	0 30	0 3	0 32	0 25	0 229	0 1
6	0 1	1 2 7 4	1 24	1 30	1 3	1 23 2	1 25	1 29	1 1
7	0 1	7 4	4	230	23	3	2 5	2 29	2 1
8	0 1	3 7 4	3 4	3 30	3 3	3 23	3 5	3 2 9	3 1
9	0 1	4 7 4	0 66	0 653	0 65	4 322	4 25	4 2 9	4 1
10	0 1	5 27 4	1 66	1 653	1 65	5 322	5 25	5 229	5 1
11	0 1	6 7 4	66	653	65	6 3	6 5	6 29	6 1
12	1	0 7 68	09	0 076	0 07	0 0787	0 10	0 074	7 1
13	0 1	1 7 68	1 09	1 076	1 07	1 0787	1 10	1 074	0 9
14	0 1	07268	2 09	076	2 07	0787	2 1	2 074	1 9
15	0 1	3 68	3 9	3 076	3 07	3 787	3 10	3 074	2 9
16	0 1	4 7 68	0 51	0 499	0 50	4 787	4 10	4 074	3 9
17	1	5 07 68	1 51	1 499	1 50	5 0787	5 10	5 074	4 9
18	0 1	6 07 68	51	2 499	50	6 0787	6 1	6 74	5 9
19	1	7 07 68	3 51	3 499	3 50	7 787	7 10	7 074	6 9
20	0 1	91813	0 93	0 9 2	0 92	9 51	95	0 920	0 8
21	1	1 91813	1 93	1 9 2	1 92	1 9 51	1 95	1 920	1 8
22	0 1	91813	93	9	2 92	2 9 51	95	2 920	2 8

I L pY diminihth d tei C l m 3 by d yaft F b 8

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XII *continued* Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8	9	10	11	12
Day	Mean Long.	A	B	C	D	E	F	G	H	I	J—α
	°	d	d	d	d	d	d	d	d	d	d
Feb. 23	197.15290	4.64351	3.907	3.87	3.9112	3.9163	5.35	5.35	3.76	3.84	54.00
24	247.47055	5.64351	4.907	4.87	4.9112	4.9163	6.35	6.35	4.76	4.84	55.00
25	297.78819	6.64351	5.907	5.87	5.9112	5.9163	0.41	0.40	5.76	5.84	56.00
26	348.10584	0.59258	6.907	6.87	6.9112	6.9163	1.41	1.40	6.76	6.84	57.00
27	38.42348	1.59258	7.907	0.71	0.7557	0.7615	2.41	2.40	0.58	7.84	58.00
28	88.74113	2.59258	8.907	1.71	1.7557	1.7615	3.41	3.40	1.58	8.84	59.00
Mar. 1	139.05878	3.59258	9.907	2.71	2.7557	2.7615	4.41	4.40	2.58	9.84	60.00
2	189.37642	4.59258	10.907	3.71	3.7557	3.7615	5.41	5.40	3.58	10.84	61.00
3	239.69407	5.59258	11.907	4.71	4.7557	4.7615	6.41	6.40	4.58	11.84	62.00
4	290.01172	6.59258	0.384	5.71	5.7557	5.7615	0.46	0.45	5.58	12.84	63.00
5	340.32936	0.54166	1.384	6.71	6.7557	6.7615	1.46	1.45	6.58	13.84	64.00
6	30.64701	1.54166	2.384	0.55	0.6002	0.6066	2.46	2.45	0.41	14.84	65.00
7	80.96466	2.54166	3.384	1.55	1.6002	1.6066	3.46	3.45	1.41	15.84	66.00
8	131.28230	3.54166	4.384	2.55	2.6022	2.6066	4.46	4.45	2.41	16.84	67.00
9	181.59995	4.54166	5.384	3.55	3.6002	3.6066	5.46	5.45	3.41	17.84	68.00
10	231.91759	5.54166	6.384	4.55	4.6002	4.6066	6.46	6.45	4.41	18.84	69.00
11	282.23524	6.54166	7.384	5.55	5.6002	5.6066	0.51	0.50	5.41	19.84	70.00
12	332.55289	0.49073	8.384	6.55	6.6002	6.6066	1.51	1.50	6.41	20.84	71.00
13	22.87053	1.49073	9.384	0.39	0.4446	0.4518	2.51	2.50	0.23	21.84	72.00
14	73.18818	2.49073	10.384	1.39	1.4446	1.4518	3.51	3.50	1.23	22.84	73.00
15	123.50583	3.49073	11.384	2.39	2.4446	2.4518	4.51	4.50	2.23	23.84	74.00
16	173.82347	4.49073	12.384	3.39	3.4446	3.4518	5.51	5.50	3.23	24.84	75.00
17	224.14112	5.49073	0.861	4.39	4.4446	4.4518	6.51	6.50	4.23	25.84	76.00
18	274.45876	6.49073	1.861	5.39	5.4446	5.4518	0.56	0.55	5.23	26.84	77.00
19	324.77641	0.43980	2.861	6.39	6.4446	6.4518	1.56	1.55	6.23	27.84	78.00
20	15.09406	1.43980	3.861	0.23	0.2891	0.2970	2.56	2.55	0.05	28.84	79.00
21	65.41170	2.43980	4.861	1.23	1.2891	1.2970	3.56	3.55	1.05	29.84	80.00
22	115.72935	3.43980	5.861	2.23	2.2891	2.2970	4.56	4.55	2.05	30.84	81.00
23	166.04700	4.43980	6.861	3.23	3.2891	3.2970	5.56	5.55	3.05	31.84	82.00
24	216.36464	5.43980	7.861	4.23	4.2891	4.2970	6.56	6.55	4.05	32.84	83.00
25	266.68229	6.43980	8.861	5.23	5.2891	5.2970	0.61	0.60	5.05	33.84	84.00
26	316.99993	0.38887	9.861	6.23	6.2891	6.2970	1.61	1.60	6.05	34.84	85.00
27	7.31758	1.38887	10.861	0.06	0.1336	0.1422	2.61	2.60	7.05	35.84	86.00
28	57.63523	2.38887	11.861	1.06	1.1336	1.1422	3.61	3.60	0.87	36.84	87.00
29	107.95287	3.38887	0.337	2.06	2.1336	2.1422	4.61	4.60	1.87	37.84	88.00
30	158.27052	4.38887	1.337	3.06	3.1336	3.1422	5.61	5.60	2.87	38.84	89.00
31	208.58817	5.38887	2.337	4.06	4.1336	4.1422	6.61	6.60	3.87	39.84	90.00
April 1	258.90581	6.38887	3.337	5.06	5.1336	5.1422	0.66	0.65	4.87	40.84	91.00
2	309.22346	0.33795	4.337	6.06	6.1336	6.1422	1.66	1.65	5.87	41.84	92.00
3	359.54110	1.33795	5.337	7.06	7.1336	7.1422	2.66	2.65	6.87	42.84	93.00
4	49.85875	2.33795	6.337	0.90	0.9780	0.9874	3.66	3.65	0.70	43.84	94.00
5	100.17640	3.33795	7.337	1.90	1.9780	1.9874	4.66	4.65	1.70	44.84	95.00
6	150.49404	4.33795	8.337	2.90	2.9780	2.9874	5.66	5.65	2.70	45.84	96.00
7	200.81169	5.33795	9.337	3.90	3.9780	3.9874	6.66	6.65	3.70	46.84	97.00
8	251.12934	6.33795	10.337	4.90	4.9780	4.9874	0.71	0.70	4.70	47.84	98.00
9	301.44698	0.28702	11.337	5.90	5.9780	5.9874	1.71	1.70	5.70	48.84	99.00
10	351.76463	1.28702	12.337	6.90	6.9780	6.9874	2.71	2.70	6.70	49.84	100.00
11	42.08228	2.28702	0.814	0.74	0.8225	0.8326	3.71	3.70	0.52	0.68	101.00
12	92.39992	3.28702	1.814	1.74	1.8225	1.8326	4.71	4.70	1.52	1.68	102.00
13	142.71757	4.28702	2.814	2.74	2.8225	2.8326	5.71	5.70	2.52	2.68	103.00
14	193.03521	5.28702	3.814	3.74	3.8225	3.8326	6.71	6.70	3.52	3.68	104.00
15	243.35286	6.28702	4.814	4.74	4.8225	4.8326	0.76	0.75	4.52	4.68	105.00
16	293.67051	0.23609	5.814	5.74	5.8225	5.8326	1.76	1.75	5.52	5.68	106.00

In Leap Year diminish the date in Columns 1, 13, by 1 day after Feb. 28.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XII *continued* Motions of Mean Longitude and the Arguments for Days

3	4	5	6	7	8	9			
Day	N	O	P	Q	R	S	T	U	V
						d	d	d	d
Feb 23	0 1	3 91813	0 36	345	0 34	3 9 51	3 95	3 920	3 8
24	2	4 91813	1 36	1 345	1 34	4 9 51	4 95	4 9 0	4 8
25	0	5 91813	2 36	2 345	2 34	5 9 51	5 95	5 920	5 8
26	2	6 91813	3 36	3 345	3 34	6 9251	6 95	6 920	6 8
27	0 2	0 76358	0 78	0 768	0 76	7716	0 80	0 766	0 6
28	2	1 76358	1 78	1 768	1 76	1 7716	1 80	1 766	1 6
Mar 1		76358	78	2 768	76	7716	80	2 766	6
2	0	3 76358	0 21	0 191	0 19	3 7716	3 8	3 766	3 6
3	0	4 76358	1 1	1 191	1 19	4 7716	4 80	4 766	4 6
4	0 2	5 76358	2 1	2 191	2 19	5 7716	5 80	5 766	5 6
5	0 2	6 76358	3 21	3 191	3 19	6 7716	6 80	6 766	6 6
6	0	6 90	0 63	0 614	0 61	0 6180	0 65	611	0 4
7	0	1 609	1 63	1 614	1 61	1 6180	1 65	1 611	1 4
8	0 2	6090	63	2 614	2 61	2 6180	65	2 611	2 4
9	0	3 6 9	0 05	0 036	0 03	3 6180	3 65	3 611	3 4
10	0	4 60902	1 05	1 036	1 03	4 6180	4 65	4 611	4 4
11	0 2	5 6 90	2 5	036	2 03	5 6180	5 65	5 611	5 4
12	0	6 60902	3 05	3 036	3 03	6 6180	6 65	6 611	6 4
13	0	0 45447	0 48	0 459	0 46	0 4644	0 50	0 457	0 2
14	2	1 45447	1 48	1 459	1 46	1 4644	1 50	1 457	1 2
15	0	2 45447	2 48	459	2 46	2 4644	2 50	2 457	2 2
16	0	3 45447	3 48	3 459	3 46	3 4644	3 50	3 457	3 2
17	0	4 45447	0 90	0 882	0 88	4 4644	4 50	4 457	4
18	0 2	5 45447	1 90	1 88	1 88	5 4644	5 50	5 457	5 2
19	0 2	6 45447	2 90	2 88	88	6 4644	6 50	6 457	6 2
20	2	0 999	0 33	0 305	0 30	0 3109	0 35	0 303	0 0
21	0 2	1 9992	1 33	1 305	1 30	1 3109	1 35	1 3 3	1 0
22	0	9992	33	305	2 30	3109	35	303	2 0
23	0 2	3 999	3 33	3 305	3 30	3 3109	3 35	3 303	3 0
24	0	4 2999	0 75	0 7 8	0 7	4 3109	4 35	4 303	4 0
25	0 2	5 2999	1 75	1 7 8	1 72	5 3109	5 35	5 3 3	5 0
26	0	6 9992	2 75	2 7 8	7	6 3109	6 35	6 303	6 0
27	0 2	0 14537	0 17	0 151	0 15	0 1573	0 20	0 148	7 0
28	0	1 14537	1 17	1 151	1 15	1 1573	1 20	1 148	0 9
29	0 2	2 14537	17	2 151	2 15	2 1573	2 20	2 148	1 9
30	0	3 14537	3 17	3 151	3 15	3 1573	3 20	3 148	2 9
31	0	4 14537	0 60	0 574	0 57	4 1573	4 0	4 148	3 9
April 1	0	5 14537	1 60	1 574	1 57	5 1573	5 20	5 148	4 9
2	3	6 14537	6	2 574	2 57	6 1573	6 20	6 148	5 9
3	3	7 14537	0	3 574	3 57	0 0 38	05	7 148	6 9
4	0 3	0 99081	1	0 997	0 99	1 0 38	1 05	994	7
5	0 3	1 99081	02	1 997	1 99	0 38	2 05	1 994	1 7
6	0 3	2 99 81	3 0	2 997	2 99	3 0038	3 05	2 994	2 7
7	0 3	3 99081	44	0 4 0	0 4	4 038	4 5	3 994	3 7
8	0 3	4 99081	1 44	1 42	1 42	5 0038	5 05	4 994	4 7
9	0 3	5 99 81	44	2 4 0	2 42	6 038	6 05	5 994	5 7
10	0 3	6 99081	3 44	3 420	3 42	7 038	7 05	6 994	6 7
11	0 3	0 83626	0 87	0 843	0 84	0 8502	0 90	0 840	0 5
12	0 3	1 836 6	1 87	1 843	1 84	1 8502	1 90	1 84	1 5
13	0 3	2 836 6	87	2 843	2 84	850	90	2 840	5
14	0 3	3 836 6	0 29	0 66	0 26	3 850	3 90	3 840	3 5
15	0 3	4 83626	1 9	1 266	1 26	4 850	4 9	4 840	4 5
16	0 3	5 83626	2 9	266	6	5 850	5 90	5 84	5 5

Tables of Longitude, Latitude, and Radius Vector

XII *continued* Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8	9	10	11	12
Day	Mean Long.	A	B	C	D	E	F	G	H	I	J—α
	°	d	d	d	d	d	d	d	d	d	d
April 17	343.98815	1.23609	6.814	6.74	6.8225	6.8326	2.76	2.75	6.52	6.68	107.00
18	34.30580	2.23609	7.814	0.58	0.6670	0.6777	3.76	3.75	0.34	7.68	108.00
19	84.62345	3.23609	8.814	1.58	1.6670	1.6777	4.76	4.75	1.34	8.68	109.00
20	134.94109	4.23609	9.814	2.58	2.6670	2.6777	5.76	5.75	2.34	9.68	110.00
21	185.25874	5.23609	10.814	3.58	3.6670	3.6777	6.76	6.75	3.34	10.68	111.00
22	235.57638	6.23609	11.814	4.58	4.6670	4.6777	0.81	0.80	4.34	11.68	112.00
23	285.89403	0.18517	0.291	5.58	5.6670	5.6777	1.81	1.80	5.34	12.68	113.00
24	336.21168	1.18517	1.291	6.58	6.6670	6.6777	2.81	2.80	6.34	13.68	114.00
25	26.52932	2.18517	2.291	0.42	0.5114	0.5229	3.81	3.80	0.16	14.68	115.00
26	76.84697	3.18517	3.291	1.42	1.5114	1.5229	4.81	4.80	1.16	15.68	116.00
27	127.16462	4.18517	4.291	2.42	2.5114	2.5229	5.81	5.80	2.16	16.68	117.00
28	177.48226	5.18517	5.291	3.42	3.5114	3.5229	6.81	6.80	3.16	17.68	118.00
29	227.79991	6.18517	6.291	4.42	4.5114	4.5229	0.86	0.85	4.16	18.68	119.00
30	278.11755	0.13424	7.291	5.42	5.5114	5.5229	1.86	1.85	5.16	19.68	120.00
May 1	328.43520	1.13424	8.291	6.42	6.5114	6.5229	2.86	2.85	6.16	20.68	121.00
2	18.75285	2.13424	9.291	0.26	0.3559	0.3681	3.86	3.85	7.16	21.68	122.00
3	69.07049	3.13424	10.291	1.26	1.3559	1.3681	4.86	4.85	0.99	22.68	123.00
4	119.38814	4.13424	11.291	2.26	2.3559	2.3681	5.86	5.85	1.99	23.68	124.00
5	169.70579	5.13424	12.291	3.26	3.3559	3.3681	6.86	6.85	2.99	24.68	125.00
6	220.02343	6.13424	0.768	4.26	4.3559	4.3681	0.91	0.90	3.99	25.68	126.00
7	270.34108	0.08331	1.768	5.26	5.3559	5.3681	1.91	1.90	4.99	26.68	127.00
8	320.65873	1.08331	2.768	6.26	6.3559	6.3681	2.91	2.90	5.99	27.68	128.00
9	10.97637	2.08331	3.768	0.10	0.2003	0.2133	3.91	3.90	6.99	28.68	129.00
10	61.29402	3.08331	4.768	1.10	1.2003	1.2133	4.91	4.90	0.81	29.68	130.00
11	111.61166	4.08331	5.768	2.10	2.2003	2.2133	5.91	5.90	1.81	30.68	131.00
12	161.92931	5.08331	6.768	3.10	3.2003	3.2133	6.91	6.90	2.81	31.68	132.00
13	212.24696	6.08331	7.768	4.10	4.2003	4.2133	0.96	0.95	3.81	32.68	133.00
14	262.56460	0.03238	8.768	5.10	5.2003	5.2133	1.96	1.95	4.81	33.68	134.00
15	312.88225	1.03238	9.768	6.10	6.2003	6.2133	2.96	2.95	5.81	34.68	135.00
16	3.19990	2.03238	10.768	7.10	0.0448	0.0585	3.96	3.95	6.81	35.68	136.00
17	53.51754	3.03238	11.768	0.94	1.0448	1.0585	4.96	4.95	0.63	36.68	137.00
18	103.83519	4.03238	0.244	1.94	2.0448	2.0585	5.96	5.95	1.63	37.68	138.00
19	154.15283	5.03238	1.244	2.94	3.0448	3.0585	0.01	0.00	2.63	38.68	139.00
20	204.47048	6.03238	2.244	3.94	4.0448	4.0585	1.01	1.00	3.63	39.68	140.00
21	254.78813	7.03238	3.244	4.94	5.0448	5.0585	2.01	2.00	4.63	40.68	141.00
22	305.10577	0.98146	4.244	5.94	6.0448	6.0585	3.01	3.00	5.63	41.68	142.00
23	355.42342	1.98146	5.244	6.94	7.0448	7.0585	4.01	4.00	6.63	42.68	143.00
24	45.74107	2.98146	6.244	0.77	0.8893	0.9037	5.01	5.00	0.45	43.68	144.00
25	96.05871	3.98146	7.244	1.77	1.8893	1.9037	6.01	6.00	1.45	44.68	145.00
26	146.37636	4.98146	8.244	2.77	2.8893	2.9037	0.06	0.05	2.45	45.68	146.00
27	196.69400	5.98146	9.244	3.77	3.8893	3.9037	1.06	1.05	3.45	46.68	147.00
28	247.01165	6.98146	10.244	4.77	4.8893	4.9037	2.06	2.05	4.45	47.68	148.00
29	297.32930	0.93053	11.244	5.77	5.8893	5.9037	3.06	3.05	5.45	48.68	149.00
30	347.64694	1.93053	12.244	6.77	6.8893	6.9037	4.06	4.05	6.45	49.68	150.00
31	37.96459	2.93053	0.721	0.61	0.7337	0.7488	5.06	5.05	0.28	0.53	151.00
June 1	88.28224	3.93053	1.721	1.61	1.7337	1.7488	6.06	6.05	1.28	1.53	152.00
2	138.59988	4.93053	2.721	2.61	2.7337	2.7488	0.11	0.10	2.28	2.53	153.00
3	188.91753	5.93053	3.721	3.61	3.7337	3.7488	1.11	1.10	3.28	3.53	154.00
4	239.23517	6.93053	4.721	4.61	4.7337	4.7488	2.11	2.10	4.28	4.53	155.00
5	289.55282	0.87960	5.721	5.61	5.7337	5.7488	3.11	3.10	5.28	5.53	156.00
6	339.87047	1.87960	6.721	6.61	6.7337	6.7488	4.11	4.10	6.28	6.53	157.00
7	30.18811	2.87960	7.721	0.45	0.5782	0.5940	5.11	5.10	0.10	7.53	158.00

In Leap Year diminish the date in Columns 1, 13, by 1 day after Feb. 28.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XII *continued* **Motions of Mean Longitude and the Arguments for Days**

3	4	5	6	7	8	9			
Day	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**
				d					d
Apr I 17	3	6 836 6	3 9	3 266	3 6	6 8502	6 90	6 840	6 5
18	0 3	68171	0 7	689	0 68	0 6967	0 75	0 686	0 3
19	0 3	1 68171	1 7	1 689	1 68	1 6967	1 75	1 686	1 3
20	0 3	68171	2 7	2 689	2 68	2 6967	2 75	686	3
21	0 3	3 68171	0 14	0 11	0 11	3 6967	3 75	3 686	3 3
22	0 3	4 68171	1 14	1 112	1 11	4 6967	4 75	4 686	4 3
23	0 3	5 68171	2 14	2 112	2 11	5 6967	5 75	5 686	5 3
24	0 3	6 68171	3 14	3 11	3 11	6 6967	6 75	6 686	6 3
25	0 3	0 5 716	0 56	0 535	0 53	0 5431	0 60	0 531	0 1
26	0 3	1 52716	1 56	1 535	1 53	1 5431	1 60	1 531	1 1
27	0 3	5 716	2 56	535	53	2 5431	2 60	2 531	2 1
28	3	3 52716	3 56	3 535	3 53	3 5431	3 60	3 531	3 1
29	3	4 5 716	0 99	0 958	0 95	4 5431	4 (0	4 531	4 1
30	0 3	5 5 716	1 99	1 958	1 95	5 5431	5 60	5 531	5 1
May 1	0 3	6 5 716	99	2 958	2 95	6 5431	6 60	6 531	6 1
2	3	0 37 6	0 41	0 381	0 37	0 3896	0 45	0 377	0 0
3	0 3	1 37 60	1 41	1 381	1 37	1 3896	1 45	1 377	1 0
4	0 3	2 37 60	2 41	2 381	37	2 3896	2 45	2 377	2 0
5	0 3	3 37260	3 41	3 381	3 37	3 3896	3 45	3 377	3 0
6	3	4 37260	0 84	0 804	0 80	4 3896	4 45	4 377	4 0
7	0 3	5 3726	1 84	1 804	1 80	5 3896	5 45	5 377	5 0
8	0 4	6 37 60	84	804	2 80	6 3896	6 45	6 377	6 0
9	0 4	0 1805	0 6	0 27	0 2	0 2360	0 30	0 2 3	7 0
10	0 4	1 1805	1 26	1 2 7	1 22	1 2360	1 30	1 3	0 8
11	0 4	1805	2 6	2 2 7	2 2	2360	2 30	2 223	1 8
12	0 4	3 218 5	3 26	3 7	3	3 2360	3 30	3 223	2 8
13	0 4	4 21805	0 68	0 650	0 64	4 2360	4 30	4 3	3 8
14	0 4	5 1805	1 68	1 650	1 64	5 36	5 30	5 2 3	4 8
15	0 4	6 18 5	68	65	64	6 2360	6 30	6 223	5 8
16	0 4	0 06350	0 11	0 073	0 07	0 0824	0 15	0 068	6 8
17	0 4	1 06350	1 11	1 073	1 07	1 08 4	1 15	1 068	0 6
18	0 4	635	2 11	2 73	07	2 0824	2 15	2 068	1 6
19	0 4	3 0635	3 11	3 73	3 7	3 08 4	3 15	3 068	2 6
20	0 4	4 0635	0 53	0 496	0 49	4 08 4	4 15	4 068	3 6
21	0 4	5 06350	1 53	1 496	1 49	5 08 4	5 15	5 068	4 6
22	0 4	6 06350	2 53	2 496	2 49	6 0824	6 15	6 068	5 6
23	0 4	7 06350	3 53	3 496	3 49	7 0824	0 00	7 068	6 6
24	0 4	0 90894	0 96	0 919	0 91	0 9289	1 00	0 914	0 4
25	0 4	1 90894	1 96	1 919	1 91	1 9 89	2 0	1 914	1 4
26	0 4	90894	2 96	2 919	2 91	2 9289	3 00	2 914	2 4
27	0 4	3 90894	0 38	0 342	0 33	3 9 89	4 00	3 914	3 4
28	0 4	4 9 894	1 38	1 34	1 33	4 9 89	5 0	4 914	4 4
29	0 4	5 90894	2 38	34	2 33	5 9 89	6 0	5 914	5 4
30	0 4	6 90894	3 38	3 342	3 33	6 9 89	7 00	6 914	6 4
31	0 4	0 75439	0 80	0 765	0 76	0 7753	0 85	0 76	0 3
June 1	0 4	1 75439	1 80	1 765	1 76	1 7753	1 85	1 760	1 3
2	0 4	75439	80	2 765	2 76	2 7753	2 85	760	2 3
3	0 4	3 75439	0 23	0 188	0 18	3 7753	3 85	3 760	3 3
4	0 4	4 75439	1 3	1 188	1 18	4 7753	4 85	4 760	4 3
5	0 4	5 75439	2 23	2 188	18	5 7753	5 85	5 760	5 3
6	0 4	6 75439	3 23	3 188	3 18	6 7753	6 85	6 760	6 3
7	0 4	0 59984	0 65	0 611	0 60	0 6218	0 70	0 605	0 1

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XII *continued* Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8	9	10	11	12
Day	Mean Long.	A	B	C	D	E	F	G	H	I	J—α
	°	d	d	d	d	d	d	d	d	d	d
June 8	80.50576	3.87960	8.721	1.45	1.5782	1.5940	6.11	6.10	1.10	8.53	159.00
9	130.82341	4.87960	9.721	2.45	2.5782	2.5940	0.17	0.15	2.10	9.53	160.00
10	181.14105	5.87960	10.721	3.45	3.5782	3.5940	1.17	1.15	3.10	10.53	161.00
11	231.45870	6.87960	11.721	4.45	4.5782	4.5940	2.17	2.15	4.10	11.53	162.00
12	281.77635	0.82868	0.198	5.45	5.5782	5.5940	3.17	3.15	5.10	12.53	163.00
13	332.09399	1.82868	1.198	6.45	6.5782	6.5940	4.17	4.15	6.10	13.53	164.00
14	22.41164	2.82868	2.198	0.29	0.4227	0.4392	5.17	5.15	7.10	14.53	165.00
15	72.72928	3.82868	3.198	1.29	1.4227	1.4392	6.17	6.15	0.92	15.53	166.00
16	123.04693	4.82868	4.198	2.29	2.4227	2.4392	0.22	0.20	1.92	16.53	167.00
17	173.36458	5.82868	5.198	3.29	3.4227	3.4392	1.22	1.20	2.92	17.53	168.00
18	223.68222	6.82868	6.198	4.29	4.4227	4.4392	2.22	2.20	3.92	18.53	169.00
19	273.99987	0.77775	7.198	5.29	5.4227	5.4392	3.22	3.20	4.92	19.53	170.00
20	324.31752	1.77775	8.198	6.29	6.4227	6.4392	4.22	4.20	5.92	20.53	171.00
21	14.63516	2.77775	9.198	0.13	0.2671	0.2844	5.22	5.20	6.92	21.53	172.00
22	64.95281	3.77775	10.198	1.13	1.2671	1.2844	6.22	6.20	0.75	22.53	173.00
23	115.27045	4.77775	11.198	2.13	2.2671	2.2844	0.27	0.25	1.75	23.53	174.00
24	165.58810	5.77775	12.198	3.13	3.2671	3.2844	1.27	1.25	2.75	24.53	175.00
25	215.90575	6.77775	0.675	4.13	4.2671	4.2844	2.27	2.25	3.75	25.53	176.00
26	266.22339	0.72682	1.675	5.13	5.2671	5.2844	3.27	3.25	4.75	26.53	177.00
27	316.54104	1.72682	2.675	6.13	6.2671	6.2844	4.27	4.25	5.75	27.53	178.00
28	6.85869	2.72682	3.675	7.13	0.1116	0.1296	5.27	5.25	6.75	28.53	179.00
29	57.17633	3.72682	4.675	0.97	1.1116	1.1296	6.27	6.25	0.57	29.53	180.00
30	107.49398	4.72682	5.675	1.97	2.1116	2.1296	0.32	0.30	1.57	30.53	181.00
July 1	157.81162	5.72682	6.675	2.97	3.1116	3.1296	1.32	1.30	2.57	31.53	182.00
2	208.12927	6.72682	7.675	3.97	4.1116	4.1296	2.32	2.30	3.57	32.53	183.00
3	258.44692	0.67589	8.675	4.97	5.1116	5.1296	3.32	3.30	4.57	33.53	184.00
4	308.76456	1.67589	9.675	5.97	6.1116	6.1296	4.32	4.30	5.57	34.53	185.00
5	359.08221	2.67589	10.675	6.97	7.1116	7.1296	5.32	5.30	6.57	35.53	186.00
6	49.39986	3.67589	11.675	0.81	0.9561	0.9747	6.32	6.30	0.39	36.53	187.00
7	99.71750	4.67589	0.151	1.81	1.9561	1.9747	0.37	0.35	1.39	37.53	188.00
8	150.03515	5.67589	1.151	2.81	2.9561	2.9747	1.37	1.35	2.39	38.53	189.00
9	200.35280	6.67589	2.151	3.81	3.9561	3.9747	2.37	2.35	3.39	39.53	190.00
10	250.67044	0.62497	3.151	4.81	4.9561	4.9747	3.37	3.35	4.39	40.53	191.00
11	300.98809	1.62497	4.151	5.81	5.9561	5.9747	4.37	4.35	5.39	41.53	192.00
12	351.30573	2.62497	5.151	6.81	6.9561	6.9747	5.37	5.35	6.39	42.53	193.00
13	41.62338	3.62497	6.151	0.65	0.8005	0.8199	6.37	6.35	0.21	43.53	194.00
14	91.94103	4.62497	7.151	1.65	1.8005	1.8199	0.42	0.40	1.21	44.53	195.00
15	142.25867	5.62497	8.151	2.65	2.8005	2.8199	1.42	1.40	2.21	45.53	196.00
16	192.57632	6.62497	9.151	3.65	3.8005	3.8199	2.42	2.40	3.21	46.53	197.00
17	242.89397	0.57404	10.151	4.65	4.8005	4.8199	3.42	3.40	4.21	47.53	198.00
18	293.21161	1.57404	11.151	5.65	5.8005	5.8199	4.42	4.40	5.21	48.53	199.00
19	343.52926	2.57404	12.151	6.65	6.8005	6.8199	5.42	5.40	6.21	49.53	200.00
20	33.84690	3.57404	0.628	0.48	0.6450	0.6651	6.42	6.40	0.04	0.37	201.00
21	84.16455	4.57404	1.628	1.48	1.6450	1.6651	0.47	0.45	1.04	1.37	202.00
22	134.48220	5.57404	2.628	2.48	2.6450	2.6651	1.47	1.45	2.04	2.37	203.00
23	184.79984	6.57404	3.628	3.48	3.6450	3.6651	2.47	2.45	3.04	3.37	204.00
24	235.11749	0.52311	4.628	4.48	4.6450	4.6651	3.47	3.45	4.04	4.37	205.00
25	285.43514	1.52311	5.628	5.48	5.6450	5.6651	4.47	4.45	5.04	5.37	206.00
26	335.75278	2.52311	6.628	6.48	6.6450	6.6651	5.47	5.45	6.04	6.37	207.00
27	26.07043	3.52311	7.628	0.32	0.4895	0.5103	6.47	6.45	7.04	7.37	208.00
28	76.38807	4.52311	8.628	1.32	1.4895	1.5103	0.52	0.50	0.86	8.37	209.00
29	126.70572	5.52311	9.628	2.32	2.4895	2.5103	1.52	1.50	1.86	9.37	210.00

In Leap Year diminish the date in Columns 1, 13, by 1 day after Feb. 28.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XII *continued* **Motions of Mean Longitude and the Arguments for Days**

3	4	5	6	7	8	9			
D y	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**
				d		1		d	
June 8	0 4	1 59984	1 65	1 611	1 60	1 6 18	1 70	1 605	1 1
9	4	59984	65	611	2 60	6 18	2 70	605	2 1
10	0 4	3 59984	07	034	0 03	3 6218	3 70	3 605	3 1
11	4	4 59984	1 7	1 034	1 03	4 6 18	4 70	4 605	4 1
12	4	5 59984	7	034	2 3	5 6 18	5 70	5 605	5 1
13	0 4	6 59984	3 7	3 34	3 3	6 6 18	6 70	6 605	6 1
14	5	0 445 9	50	0 457	0 45	0 4682	0 55	0 451	7 1
15	0 5	1 445 9	1 50	1 457	1 45	1 468	1 55	1 451	0 9
16	0 5	44529	2 5	457	45	468	55	451	1 9
17	0 5	3 445 9	3 50	3 457	3 45	3 4682	3 55	3 451	2 9
18	5	4 445 9	92	0 880	87	4 468	4 55	4 451	3 9
19	0 5	5 445 9	1 9	1 880	1 87	5 468	5 55	5 451	4 9
20	0 5	6 44529	9	880	87	6 4682	6 55	6 451	5 9
21	0 5	9073	0 35	0 303	0 9	3147	0 40	0 297	6 9
22	5	1 9 73	1 35	1 303	1 9	1 3147	1 40	1 297	0 7
23	0 5	2 9073	2 35	2 303	2 29	2 3147	4	2 297	1 7
24	0 5	3 29073	3 35	3 3 3	3 29	3 3147	3 40	3 297	7
25	0 5	4 29 73	0 77	0 726	0 72	4 3147	4 40	4 297	3 7
26	5	5 9 73	1 77	1 726	1 7	5 3147	5 40	5 297	4 7
27	0 5	6 9 73	77	2 726	2 7	6 3147	6 40	6 97	5 7
28	0 5	0 13618	0 19	0 149	0 14	0 1611	0 5	0 143	6 7
29	0 5	1 13618	1 19	1 149	1 14	1 1611	1 5	1 143	0 5
30	0 5	13618	2 19	149	2 14	2 1611	25	2 143	1 5
July 1	0 5	3 13618	3 19	3 149	3 14	3 1611	3 5	3 143	2 5
2	0 5	4 13618	0 6	0 57	0 56	4 1611	4 25	4 143	3 5
3	0 5	5 13618	1 6	1 57	1 56	5 1611	5 25	5 143	4 5
4	0 5	6 13618	6	57	56	6 1611	6 5	6 143	5 5
5	0 5	7 13618	0 04	3 57	3 56	0 0076	0 10	7 143	6 5
6	5	0 98163	1 04	995	0 98	1 0076	1 10	0 988	4
7	0 5	1 98163	2 04	1 995	1 98	2 0076	10	1 988	1 4
8	0 5	2 98163	3 04	2 995	2 98	3 0076	3 1	2 988	2 4
9	0 5	3 98163	0 47	0 418	0 41	4 076	4 10	3 988	3 4
10	0 5	4 98163	1 47	1 418	1 41	5 0076	5 10	4 988	4 4
11	5	5 98163	47	418	41	6 076	6 10	5 988	5 4
12	0 5	6 98163	3 47	3 418	3 41	7 0076	7 10	6 988	6 4
13	0 5	827 7	0 89	0 841	0 83	0 8540	0 95	0 834	0 2
14	0 5	1 8 707	1 89	1 841	1 83	1 8540	1 95	1 834	1 2
15	5	2 8 7 7	89	841	83	8540	2 95	2 834	2
16	0 5	3 8 7 7	31	0 264	5	3 854	3 95	3 834	3 2
17	0 5	4 8 707	1 31	1 64	1 25	4 854	4 95	4 834	4 2
18	0 5	5 8 707	2 31	64	5	5 854	5 95	5 834	5
19	0 5	6 8 707	3 31	3 64	3 5	6 8540	6 95	6 834	6 2
20	0 6	67 5	0 74	0 686	0 68	0 7 4	0 80	680	0 0
21	0 6	1 67 5	1 74	1 686	1 68	1 7 04	1 80	1 68	1 0
22	0 6	2 67 5	2 74	2 686	2 68	2 70 4	2 80	2 680	2 0
23	0 6	3 67 52	0 16	0 109	0 1	3 70 4	3 80	3 68	3 0
24	0 6	4 67 5	1 16	1 1 9	1 1	4 70 4	4 8	4 68	4 0
25	0 6	5 6725	16	2 1 9	2 10	5 7004	5 8	5 680	5 0
26	0 6	6 67 52	3 16	3 1 9	3 10	6 7004	6 80	6 680	6 0
27	6	0 51797	0 59	0 53	0 52	0 5469	0 65	0 525	7 0
28	0 6	1 51797	1 59	1 532	1 52	1 5469	1 65	1 525	0 8
29	0 6	51797	2 59	53	2 5	5469	65	2 5 5	1 8

I L pY dimi i h th d t i O l m by d y ft F l 8

Tables of Longitude, Latitude, and Radius Vector

XII *continued* Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8	9	10	11	12
Day	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J—α**
	°	d	d	d	d	d	d	d	d	d	d
July 30	177·02337	6·52311	10·628	3·32	3·4895	3·5103	2·52	2·50	2·86	10·37	211·00
31	227·34101	0·47219	11·628	4·32	4·4895	4·5103	3·52	3·50	3·86	11·37	212·00
Aug. 1	277·65866	1·47219	0·105	5·32	5·4895	5·5103	4·52	4·50	4·86	12·37	213·00
2	327·97631	2·47219	1·105	6·32	6·4895	6·5103	5·52	5·50	5·86	13·37	214·00
3	18·29395	3·47219	2·105	0·16	0·3339	0·3555	6·52	6·50	6·86	14·37	215·00
4	68·61160	4·47219	3·105	1·16	1·3339	1·3555	0·57	0·55	0·68	15·37	216·00
5	118·92924	5·47219	4·105	2·16	2·3339	2·3555	1·57	1·55	1·68	16·37	217·00
6	169·24689	6·47219	5·105	3·16	3·3339	3·3555	2·57	2·55	2·68	17·37	218·00
7	219·56454	0·42126	6·105	4·16	4·3339	4·3555	3·57	3·55	3·68	18·37	219·00
8	269·88218	1·42126	7·105	5·16	5·3339	5·3555	4·57	4·55	4·68	19·37	220·00
9	320·19983	2·42126	8·105	6·16	6·3339	6·3555	5·57	5·55	5·68	20·37	221·00
10	10·51748	3·42126	9·105	0·00	0·1784	0·2007	6·57	6·55	6·68	21·37	222·00
11	60·83512	4·42126	10·105	1·00	1·1784	1·2007	0·62	0·60	0·51	22·37	223·00
12	111·15277	5·42126	11·105	2·00	2·1784	2·2007	1·62	1·60	1·51	23·37	224·00
13	161·47042	6·42126	12·105	3·00	3·1784	3·2007	2·62	2·60	2·51	24·37	225·00
14	211·78806	0·37033	0·582	4·00	4·1784	4·2007	3·62	3·60	3·51	25·37	226·00
15	262·10571	1·37033	1·582	5·00	5·1784	5·2007	4·62	4·60	4·51	26·37	227·00
16	312·42335	2·37033	2·582	6·00	6·1784	6·2007	5·62	5·60	5·51	27·37	228·00
17	2·74100	3·37033	3·582	7·00	0·0228	0·0459	6·62	6·60	6·51	28·37	229·00
18	53·05865	4·37033	4·582	0·84	1·0228	1·0459	0·67	0·65	0·33	29·37	230·00
19	103·37629	5·37033	5·582	1·84	2·0228	2·0459	1·67	1·65	1·33	30·37	231·00
20	153·69394	6·37033	6·582	2·84	3·0228	3·0459	2·67	2·65	2·33	31·37	232·00
21	204·01159	0·31940	7·582	3·84	4·0228	4·0459	3·67	3·65	3·33	32·37	233·00
22	254·32923	1·31940	8·582	4·84	5·0228	5·0459	4·67	4·65	4·33	33·37	234·00
23	304·64688	2·31940	9·582	5·84	6·0228	6·0459	5·67	5·65	5·33	34·37	235·00
24	354·96452	3·31940	10·582	6·84	7·0228	7·0459	6·67	6·65	6·33	35·37	236·00
25	45·28217	4·31940	11·582	0·68	0·8673	0·8910	0·72	0·70	0·15	36·37	237·00
26	95·59982	5·31940	0·058	1·68	1·8673	1·8910	1·72	1·70	1·15	37·37	238·00
27	145·91746	6·31940	1·058	2·68	2·8673	2·8910	2·72	2·70	2·15	38·37	239·00
28	196·23511	0·26848	2·058	3·68	3·8673	3·8910	3·72	3·70	3·15	39·37	240·00
29	246·55276	1·26848	3·058	4·68	4·8673	4·8910	4·72	4·70	4·15	40·37	241·00
30	296·87040	2·26848	4·058	5·68	5·8673	5·8910	5·72	5·70	5·15	41·37	242·00
31	347·18805	3·26848	5·058	6·68	6·8673	6·8910	6·72	6·70	6·15	42·37	243·00
Sept. 1	37·50569	4·26848	6·058	0·52	0·7118	0·7362	0·77	0·75	7·15	43·37	244·00
2	87·82334	5·26848	7·058	1·52	1·7118	1·7362	1·77	1·75	0·97	44·37	245·00
3	138·14099	6·26848	8·058	2·52	2·7118	2·7362	2·77	2·75	1·97	45·37	246·00
4	188·45863	0·21755	9·058	3·52	3·7118	3·7362	3·77	3·75	2·97	46·37	247·00
5	238·77628	1·21755	10·058	4·52	4·7118	4·7362	4·77	4·75	3·97	47·37	248·00
6	289·09393	2·21755	11·058	5·52	5·7118	5·7362	5·77	5·75	4·97	48·37	249·00
7	339·41157	3·21755	12·058	6·52	6·7118	6·7362	6·77	6·75	5·97	49·37	250·00
8	29·72922	4·21755	0·535	0·36	0·5562	0·5814	0·82	0·80	6·97	0·21	251·00
9	80·04687	5·21755	1·535	1·36	1·5562	1·5814	1·82	1·80	0·80	1·21	252·00
10	130·36451	6·21755	2·535	2·36	2·5562	2·5814	2·82	2·80	1·80	2·21	253·00
11	180·68216	0·16662	3·535	3·36	3·5562	3·5814	3·82	3·80	2·80	3·21	254·00
12	230·99980	1·16662	4·535	4·36	4·5562	4·5814	4·82	4·80	3·80	4·21	255·00
13	281·31745	2·16662	5·535	5·36	5·5562	5·5814	5·82	5·80	4·80	5·21	256·00
14	331·63510	3·16662	6·535	6·36	6·5562	6·5814	6·82	6·80	5·80	6·21	257·00
15	21·95274	4·16662	7·535	0·19	0·4007	0·4266	0·87	0·85	6·80	7·21	258·00
16	72·27039	5·16662	8·535	1·19	1·4007	1·4266	1·87	1·85	0·62	8·21	259·00
17	122·58804	6·16662	9·535	2·19	2·4007	2·4266	2·87	2·85	1·62	9·21	260·00
18	172·90568	0·11570	10·535	3·19	3·4007	3·4266	3·87	3·85	2·62	10·21	261·00
19	223·22333	1·11570	11·535	4·19	4·4007	4·4266	4·87	4·85	3·62	11·21	262·00

In Leap Year diminish the date in Columns 1, 13, by 1 day after Feb. 28.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XII *continued* **Motions of Mean Longitude and the Arguments for Days**

3	4	5	6	7	8	9			
Day	N	O	P	Q	R	S	T	U	V
					d			d	d
July 30	6	3 51797	0 1	3 532	3 5	3 5469	3 65	3 525	2 8
31	0 6	4 51797	1 1	0 955	0 94	4 5469	4 65	4 5 5	3 8
Aug 1	6	5 51797	01	1 955	1 94	5 5469	5 65	5 525	4 8
2	0 6	6 51797	3 01	955	94	6 5469	6 65	6 5 5	5 8
3	0 6	0 36342	43	0 378	0 37	0 3933	0 50	0 371	6 8
4	0 6	1 3634	1 43	1 378	1 37	1 3933	1 50	1 371	0 7
5	6	2 3634	43	378	2 37	2 3933	50	371	1 7
6	0 6	3 36342	3 43	3 378	3 37	3 3933	3 50	3 371	2 7
7	0 6	4 36342	0 86	0 801	0 79	4 3933	4 50	4 371	3 7
8	0 6	5 3634	1 86	1 801	1 79	5 3933	5 50	5 371	4 7
9	6	6 36342	2 86	801	2 79	6 3933	6 50	6 371	5 7
10	0 6	0 0886	0 8	0 4	0 1	0 2398	0 35	0 17	6 7
11	6	1 886	1 28	1 4	1 21	1 2398	1 35	1 17	0 5
12	0 6	2 0886	8	2 4	21	2 398	2 35	2 17	1 5
13	0 6	3 886	3 8	3 24	3 1	3 2398	3 35	3 217	5
14	0 6	4 0886	0 7	0 647	0 64	4 2398	4 35	4 217	3 5
15	0 6	5 0886	1 70	1 647	1 64	5 398	5 35	5 217	4 5
16	0 6	6 886	2 70	2 647	64	6 2398	6 35	6 217	5 5
17	0 6	0 05431	0 13	0 070	0 06	0 0862	0 20	0 062	6 5
18	0 6	1 05431	1 13	1 070	1 06	1 0862	1 20	1 062	0 3
19	6	2 05431	13	2 070	06	2 0862	2 20	2 06	1 3
20	0 6	3 05431	3 13	3 070	3 06	3 0862	3 20	3 06	2 3
21	0 6	4 05431	0 55	0 493	0 48	4 0862	4 20	4 062	3 3
22	0 6	5 05431	1 55	1 493	1 48	5 0862	5 20	5 062	4 3
23	0 6	6 05431	55	493	2 48	6 0862	6 20	6 06	5 3
24	0 6	7 05431	3 55	3 493	3 48	7 0862	0 05	7 062	6 3
25	6	0 89976	0 98	0 916	0 90	0 93 7	1 05	0 908	0 1
26	0 7	1 89976	1 98	1 916	1 90	1 93 7	2 05	1 908	1 1
27	7	2 89976	2 98	2 916	90	2 93 7	3 05	2 908	2 1
28	0 7	3 89976	0 40	0 339	0 33	3 93 7	4 05	3 908	3 1
29	0 7	4 89976	1 40	1 339	1 33	4 9327	5 05	4 908	4 1
30	0 7	5 89976	2 40	2 339	33	5 9327	6 5	5 908	5 1
31	0 7	6 89976	3 40	3 339	3 33	6 9327	7 05	6 908	6 1
Sept 1	0 7	0 745 1	0 82	0 76	0 75	0 7791	0 90	0 754	7 1
2	0 7	1 745 1	1 8	1 762	1 75	1 7791	1 90	1 754	0 9
3	0 7	745 1	2 82	76	2 75	2 7791	2 90	2 754	1 9
4	0 7	3 74521	0 25	0 185	0 17	3 7791	3 90	3 754	2 9
5	0 7	4 74521	1 25	1 185	1 17	4 7791	4 90	4 754	3 9
6	7	5 745 1	25	185	17	5 7791	5 90	5 754	4 9
7	7	6 745 1	3 5	3 185	3 17	6 7791	6 90	6 754	5 9
8	0 7	0 59065	0 67	0 608	0 6	0 6 56	0 75	0 600	6 9
9	0 7	1 59065	1 67	1 608	1 60	1 6 56	1 75	1 6 0	0 8
10	0 7	59065	67	608	2 60	6256	75	2 600	1 8
11	0 7	3 59 65	0 10	0 031	0 02	3 6 56	3 75	3 600	2 8
12	0 7	4 59065	1 10	1 031	1 0	4 6256	4 75	4 600	3 8
13	0 7	5 59065	2 1	031	02	5 6256	5 75	5 600	4 8
14	0 7	6 59065	3 10	3 31	3 02	6 6 56	6 75	6 600	5 8
15	0 7	0 43610	0 5	0 454	0 44	0 4720	0 60	0 445	6 8
16	0 7	1 43610	1 5	1 454	1 44	1 4720	1 60	1 445	0 6
17	0 7	43610	2 5	2 454	2 44	47 0	2 60	2 445	1 6
18	0 7	3 43610	3 52	3 454	3 44	3 47 0	3 60	3 445	2 6
19	0 7	4 43610	0 94	0 877	0 86	4 4720	4 60	4 445	3 6

I L pY dm ihth d t i C l m 3 by d yaft F b 8

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XII *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11	12
Day	Mean Long.	A	B	C	D	E	F	G	H	I	J—α
	°	d	d	d	d	d	d	d	d	d	d
Sept. 20	273·54097	2·11570	0·012	5·19	5·4007	5·4266	5·87	5·85	4·62	12·21	263·00
21	323·85862	3·11570	1·012	6·19	6·4007	6·4266	6·87	6·85	5·62	13·21	264·00
22	14·17627	4·11570	2·012	0·03	0·2452	0·2718	0·93	0·90	6·62	14·21	265·00
23	64·49391	5·11570	3·012	1·03	1·2452	1·2718	1·93	1·90	0·44	15·21	266·00
24	114·81156	6·11570	4·012	2·03	2·2452	2·2718	2·93	2·90	1·44	16·21	267·00
25	165·12921	0·06477	5·012	3·03	3·2452	3·2718	3·93	3·90	2·44	17·21	268·00
26	215·44685	1·06477	6·012	4·03	4·2452	4·2718	4·93	4·90	3·44	18·21	269·00
27	265·76450	2·06477	7·012	5·03	5·2452	5·2718	5·93	5·90	4·44	19·21	270·00
28	316·08214	3·06477	8·012	6·03	6·2452	6·2718	6·93	6·90	5·44	20·21	271·00
29	6·39979	4·06477	9·012	7·03	0·0896	0·1169	0·98	0·95	6·44	21·21	272·00
30	56·71744	5·06477	10·012	0·87	1·0896	1·1169	1·98	1·95	0·26	22·21	273·00
Oct. 1	107·03508	6·06477	11·012	1·87	2·0896	2·1169	2·98	2·95	1·26	23·21	274·00
2	157·35273	0·01384	12·012	2·87	3·0896	3·1169	3·98	3·95	2·26	24·21	275·00
3	207·67038	1·01384	0·489	3·87	4·0896	4·1169	4·98	4·95	3·26	25·21	276·00
4	257·98802	2·01384	1·489	4·87	5·0896	5·1169	5·98	5·95	4·26	26·21	277·00
5	308·30567	3·01384	2·489	5·87	6·0896	6·1169	0·03	0·00	5·26	27·21	278·00
6	358·62331	4·01384	3·489	6·87	7·0896	7·1169	1·03	1·00	6·26	28·21	279·00
7	48·94096	5·01384	4·489	0·71	0·9341	0·9621	2·03	2·00	0·09	29·21	280·00
8	99·25861	6·01384	5·489	1·71	1·9341	1·9621	3·03	3·00	1·09	30·21	281·00
9	149·57625	7·01384	6·489	2·71	2·9341	2·9621	4·03	4·00	2·09	31·21	282·00
10	199·89390	0·96291	7·489	3·71	3·9341	3·9621	5·03	5·00	3·09	32·21	283·00
11	250·21155	1·96291	8·489	4·71	4·9341	4·9621	6·03	6·00	4·09	33·21	284·00
12	300·52919	2·96291	9·489	5·71	5·9341	5·9621	0·08	0·05	5·09	34·21	285·00
13	350·84684	3·96291	10·489	6·71	6·9341	6·9621	1·08	1·05	6·09	35·21	286·00
14	41·16449	4·96291	11·489	0·55	0·7786	0·8073	2·08	2·05	7·09	36·21	287·00
15	91·48213	5·96291	12·489	1·55	1·7786	1·8073	3·08	3·05	0·91	37·21	288·00
16	141·79978	6·96291	0·965	2·55	2·7786	2·8073	4·08	4·05	1·91	38·21	289·00
17	192·11742	0·91199	1·965	3·55	3·7786	3·8073	5·08	5·05	2·91	39·21	290·00
18	242·43507	1·91199	2·965	4·55	4·7786	4·8073	6·08	6·05	3·91	40·21	291·00
19	292·75272	2·91199	3·965	5·55	5·7786	5·8073	0·13	0·10	4·91	41·21	292·00
20	343·07036	3·91199	4·965	6·55	6·7786	6·8073	1·13	1·10	5·91	42·21	293·00
21	33·38801	4·91199	5·965	0·39	0·6230	0·6525	2·13	2·10	6·91	43·21	294·00
22	83·70566	5·91199	6·965	1·39	1·6230	1·6525	3·13	3·10	0·73	44·21	295·00
23	134·02330	6·91199	7·965	2·39	2·6230	2·6525	4·13	4·10	1·73	45·21	296·00
24	184·34095	0·86106	8·965	3·39	3·6230	3·6525	5·13	5·10	2·73	46·21	297·00
25	234·65859	1·86106	9·965	4·39	4·6230	4·6525	6·13	6·10	3·73	47·21	298·00
26	284·97624	2·86106	10·965	5·39	5·6230	5·6525	0·18	0·15	4·73	48·21	299·00
27	335·29389	3·86106	11·965	6·39	6·6230	6·6525	1·18	1·15	5·73	49·21	300·00
28	25·61153	4·86106	0·442	0·23	0·4675	0·4977	2·18	2·15	6·73	0·05	301·00
29	75·92918	5·86106	1·442	1·23	1·4675	1·4977	3·18	3·15	0·56	1·05	302·00
30	126·24683	6 86106	2·442	2·23	2·4675	2·4977	4·18	4·15	1·56	2·05	303·00
31	176·56447	0·81013	3·442	3·23	3·4675	3·4977	5·18	5·15	2·56	3·05	304·00
Nov. 1	226·88212	1·81013	4·442	4·23	4·4675	4·4977	6·18	6·15	3·56	4·05	305·00
2	277·19976	2·81013	5·442	5·23	5·4675	5·4977	0·23	0·20	4·56	5·05	306·00
3	327·51741	3·81013	6·442	6·23	6·4675	6·4977	1·23	1·20	5·56	6·05	307·00
4	17·83506	4·81013	7·442	0·07	0·3119	0·3429	2·23	2·20	6·56	7·05	308·00
5	68·15270	5·81013	8·442	1·07	1·3119	1·3429	3·23	3·20	0·38	8·05	309·00
6	118·47035	6·81013	9·442	2·07	2·3119	2·3429	4·23	4·20	1·38	9·05	310·00
7	168·78800	0·75921	10·442	3·07	3·3119	3·3429	5·23	5·20	2·38	10·05	311·00
8	219·10564	1·75921	11·442	4·07	4·3119	4·3429	6·23	6·20	3·38	11·05	312·00
9	269·42329	2·75921	12·442	5·07	5·3119	5·3429	0·28	0·25	4·38	12·05	313·00
10	319·74094	3·75921	0·919	6·07	6·3119	6·3429	1·28	1·25	5·38	13·05	314·00

In Leap Year diminish the date in Columns 1, 13, by 1 day after Feb. 28.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XII *continued* **Motions of Mean Longitude and the Arguments for Days**

3	4	5	6	7	8	9			
Day	N	O	P	Q	R	S	T	U	V
		d			1				
Sept 20	7	5 4361	1 94	1 877	1 86	5 47 0	5 60	5 445	4 6
21	7	6 4361	94	877	86	6 47 0	6 60	6 445	5 6
22	7	0 8155	37	0 300	0 9	0 3184	0 45	0 91	6 6
23	0 7	1 8155	1 37	1 3	1 29	1 3184	1 45	1 91	0 4
24	0 7	8155	37	2 300	9	3184	45	2 91	1 4
25	0 7	3 8155	3 37	3 300	3 29	3 3184	3 45	3 91	2 4
26	0 7	4 8155	79	0 7 3	0 71	4 3184	4 45	4 91	3 4
27	0 7	5 8155	1 79	1 7 3	1 71	5 3184	5 45	5 91	4 4
28	0 7	6 8155	79	2 7 3	71	6 3184	6 45	6 91	5 4
29	0 7	0 1 699	0 2	0 146	0 13	0 1649	0 30	0 137	6 4
30	7	1 1 699	1	1 146	1 13	1 1649	1 30	1 137	0 2
Oct 1	0 8	1 699		2 146	13	2 1649	2 30	2 137	1
2	0 8	3 1 699	3 2	3 146	3 13	3 1649	3 30	3 137	2
3	0 8	4 1 699	0 64	0 56)	0 55	4 1649	4 30	4 137	3 2
4	0 8	5 1 699	1 64	1 569	1 55	5 1649	5 30	5 137	4 2
5	0 8	6 1 699	64	569	55	6 1649	6 30	6 137	5 2
6	0 8	7 1 6)9	0 06	3 569	3 55	0 0113	0 15	7 137	6 2
7	0 8	97244	1 06	0 992	0 98	1 0113	1 15	0 982	0 0
8	0 8	1 97 44	2 06	1 99	1 98	2 0113	2 15	1 982	1 0
9	0 8	97 44	3 06	992	2 98	3 0113	3 15	982	2 0
10	0 8	3 97 44	0 49	0 415	0 40	4 113	4 15	3 98	3 0
11	8	4 97 44	1 49	1 415	1 40	5 0113	5 15	4 982	4 0
12	8	5 97 44	49	2 415	2 40	6 113	6 15	5 98	5 0
13	0 8	6 97 44	3 49	3 415	3 4	7 0113	0 00	6 982	6 0
14	8	81789	0 91	0 838	82	0 8578	1 00	8 8	7 0
15	0 8	1 81789	1 91	1 838	1 82	1 8578	00	1 828	0 9
16	0 8	2 81789	91	838	82	8578	3 0	8 8	1 9
17	8	3 81789	0 33	0 261	0 25	3 8578	4 00	3 8 8	2 9
18	8	4 8 789	1 33	1 61	1 25	4 8578	5 00	4 8 8	3 9
19	8	5 81789	33	61	2 25	5 8578	6 00	5 828	4 9
20	0 8	6 81789	3 33	3 261	3 25	6 8578	7 0	6 828	5 9
21	0 8	66334	0 76	0 684	0 67	0 7042	0 85	0 674	6 9
22	0 8	1 66334	1 76	1 684	1 67	1 7042	1 85	1 674	0 7
23	0 8	66334	76	684	2 67	7042	2 85	2 674	1 7
24	8	3 66334	0 18	0 107	0 9	3 042	3 85	3 674	2 7
25	0 8	4 66334	1 18	1 107	1 09	4 7042	4 85	4 674	3 7
26	0 8	5 66334	2 18	1 7	2 9	5 7 42	5 85	5 674	4 7
27	0 8	6 66334	3 18	3 1 7	3 09	6 704	6 85	6 674	5 7
28	8	5 878	0 61	0 53	0 51	5507	0 70	0 519	6 7
29	0 8	1 50878	1 61	1 530	1 51	1 5507	1 70	1 519	0 5
30	8	5 878	61	53	51	2 5507	70	2 519	1 5
31	0 8	3 50878	0 3	3 530	3 51	3 5507	3 70	3 519	2 5
Nov 1	8	4 50878	1 03	0 953	94	4 55 7	4 70	4 519	3 5
2	0 8	5 50878	2 3	1 953	1 94	5 5507	5 70	5 519	4 5
3	8	6 50878	3 03	953	2 94	6 55 7	6 70	6 519	5 5
4	0 8	0 35423	0 45	0 376	0 36	0 3971	0 55	0 365	6 5
5	0 8	1 35423	1 45	1 376	1 36	1 3971	1 55	1 365	0 3
6	0 8	2 354 3	45	2 376	36	3971	2 55	365	1 3
7	0 9	3 354 3	3 45	3 376	3 36	3 3971	3 55	3 365	2 3
8	0 9	4 354 3	0 88	0 799	0 78	4 3971	4 55	4 365	3 3
9	0 9	5 35423	1 88	1 799	1 78	5 3971	5 55	5 365	4 3
10	0 9	6 354 3	2 88	2 799	78	6 3971	6 55	6 365	5 3

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XII *continued* Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8	9	10	11	12
Day	Mean Long.	A	B	C	D	E	F	G	H	I	J—α
	°	d	d	d	d	d	d	d	d	d	d
Nov. 11	10.05858	4.75921	1.919	7.07	0.1564	0.1880	2.28	2.25	6.38	14.05	315.00
12	60.37623	5.75921	2.919	0.90	1.1564	1.1880	3.28	3.25	0.20	15.05	316.00
13	110.69387	6.75921	3.919	1.90	2.1564	2.1880	4.28	4.25	1.20	16.05	317.00
14	161.01152	0.70828	4.919	2.90	3.1564	3.1880	5.28	5.25	2.20	17.05	318.00
15	211.32917	1.70828	5.919	3.90	4.1564	4.1880	6.28	6.25	3.20	18.05	319.00
16	261.64681	2.70828	6.919	4.90	5.1564	5.1880	0.33	0.30	4.20	19.05	320.00
17	311.96446	3.70828	7.919	5.90	6.1564	6.1880	1.33	1.30	5.20	20.05	321.00
18	2.28211	4.70828	8.919	6.90	0.0009	0.0332	2.33	2.30	6.20	21.05	322.00
19	52.59975	5.70828	9.919	0.74	1.0009	1.0332	3.33	3.30	0.02	22.05	323.00
20	102.91740	6.70828	10.919	1.74	2.0009	2.0332	4.33	4.30	1.02	23.05	324.00
21	153.23504	0.65735	11.919	2.74	3.0009	3.0332	5.33	5.30	2.02	24.05	325.00
22	203.55269	1.65735	0.396	3.74	4.0009	4.0332	6.33	6.30	3.02	25.05	326.00
23	253.87034	2.65735	1.396	4.74	5.0009	5.0332	0.38	0.35	4.02	26.05	327.00
24	304.18798	3.65735	2.396	5.74	6.0009	6.0332	1.38	1.35	5.02	27.05	328.00
25	354.50563	4.65735	3.396	6.74	7.0009	7.0332	2.38	2.35	6.02	28.05	329.00
26	44.82328	5.65735	4.396	0.58	0.8453	0.8784	3.38	3.35	7.02	29.05	330.00
27	95.14092	6.65735	5.396	1.58	1.8453	1.8784	4.38	4.35	0.85	30.05	331.00
28	145.45857	0.60642	6.396	2.58	2.8453	2.8784	5.38	5.35	1.85	31.05	332.00
29	195.77621	1.60642	7.396	3.58	3.8453	3.8784	6.38	6.35	2.85	32.05	333.00
30	246.09386	2.60642	8.396	4.58	4.8453	4.8784	0.43	0.40	3.85	33.05	334.00
Dec. 1	296.41151	3.60642	9.396	5.58	5.8453	5.8784	1.43	1.40	4.85	34.05	335.00
2	346.72915	4.60642	10.396	6.58	6.8453	6.8784	2.43	2.40	5.85	35.05	336.00
3	37.04680	5.60642	11.396	0.42	0.6898	0.7236	3.43	3.40	6.85	36.05	337.00
4	87.36445	6.60642	12.396	1.42	1.6898	1.7236	4.43	4.40	0.67	37.05	338.00
5	137.68210	0.55550	0.872	2.42	2.6898	2.7236	5.43	5.40	1.67	38.05	339.00
6	187.99974	1.55550	1.872	3.42	3.6898	3.7236	6.43	6.40	2.67	39.05	340.00
7	238.31738	2.55550	2.872	4.42	4.6898	4.7236	0.48	0.45	3.67	40.05	341.00
8	288.63503	3.55550	3.872	5.42	5.6898	5.7236	1.48	1.45	4.67	41.05	342.00
9	338.95268	4.55550	4.872	6.42	6.6898	6.7236	2.48	2.45	5.67	42.05	343.00
10	29.27032	5.55550	5.872	0.26	0.5343	0.5688	3.48	3.45	6.67	43.05	344.00
11	79.58797	6.55550	6.872	1.26	1.5343	1.5688	4.48	4.45	0.49	44.05	345.00
12	129.90562	0.50457	7.872	2.26	2.5343	2.5688	5.48	5.45	1.49	45.05	346.00
13	180.22326	1.50457	8.872	3.26	3.5343	3.5688	6.48	6.45	2.49	46.05	347.00
14	230.54091	2.50457	9.872	4.26	4.5343	4.5688	0.53	0.50	3.49	47.05	348.00
15	280.85856	3.50457	10.872	5.26	5.5343	5.5688	1.53	1.50	4.49	48.05	349.00
16	331.17620	4.50457	11.872	6.26	6.5343	6.5688	2.53	2.50	5.49	49.05	350.00
17	21.49385	5.50457	0.349	0.10	0.3787	0.4139	3.53	3.50	6.49	50.05	351.00
18	71.81149	6.50457	1.349	1.10	1.3787	1.4139	4.53	4.50	0.31	0.89	352.00
19	122.12914	0.45364	2.349	2.10	2.3787	2.4139	5.53	5.50	1.31	1.89	353.00
20	172.44679	1.45364	3.349	3.10	3.3787	3.4139	6.53	6.50	2.31	2.89	354.00
21	222.76443	2.45364	4.349	4.10	4.3787	4.4139	0.58	0.55	3.31	3.89	355.00
22	273.08208	3.45364	5.349	5.10	5.3787	5.4139	1.58	1.55	4.31	4.89	356.00
23	323.39973	4.45364	6.349	6.10	6.3787	6.4139	2.58	2.55	5.31	5.89	357.00
24	13.71737	5.45364	7.349	7.10	0.2232	0.2591	3.58	3.55	6.31	6.89	358.00
25	64.03502	6.45364	8.349	0.94	1.2232	1.2591	4.58	4.55	0.14	7.89	359.00
26	114.35266	0.40272	9.349	1.94	2.2232	2.2591	5.58	5.55	1.14	8.89	360.00
27	164.67031	1.40272	10.349	2.94	3.2232	3.2591	6.58	6.55	2.14	9.89	361.00
28	214.98796	2.40272	11.349	3.94	4.2232	4.2591	0.63	0.60	3.14	10.89	362.00
29	265.30560	3.40272	12.349	4.94	5.2232	5.2591	1.63	1.60	4.14	11.89	363.00
30	315.62325	4.40272	0.826	5.94	6.2232	6.2591	2.63	2.60	5.14	12.89	364.00
31	5.94090	5.40272	1.826	6.94	0.0677	0.1043	3.63	3.60	6.14	13.89	365.00
32	56.25854	6.40272	2.826	0.78	1.0677	1.1043	4.63	4.60	7.14	14.89	366.00

In Leap Year diminish the date in Columns 1, 13, by 1 day after Feb. 28

Tables of Longitude, Latitude, and Radius Vector

XII *continued* **Motions of Mean Longitude and the Arguments for Days**

3	4	5	6	7	8	9			
D y	N	O	P	Q	R	S	T	U	V
		d			d	d			
Nov 11	9	0 19968	0 30	0	21	435	0 40	0 211	6 3
12	9	1 19968	1 3	1	1 1	1 435	1 4	1 11	0
13	0 9	19968	3		1	435	4	2 11	1
14	0 9	3 19968	3 30	3	3 21	3 435	3 40	3 211	2
15	0 9	4 19968	0 73	0 645	63	4 435	4 40	4 211	3
16	0 9	5 19968	1 73	1 645	1 63	5 2435	5 40	5 11	4
17	9	6 19968	2 73	2 645	2 63	6 435	6 40	6 11	5 2
18	0 9	0 0451	0 15	0 068	0 05	0 0900	0 5	0 057	6
19	0 9	1 451	1 15	1 068	1 05	1 0900	1 25	1 057	0 0
20	0 9	2 04512	2 15	068	2 5	2 090	2 5	2 57	1 0
21	0 9	3 451	3 15	3 68	3 05	3 0900	3 25	3 057	2 0
22	0 9	4 4512	0 57	0 491	0 47	4 90	4 25	4 057	3 0
23	0 9	5 0451	1 57	1 491	1 47	5 9 0	5 5	5 57	4 0
24	9	6 451	57	2 491	47	6 0900	6 5	6 057	5 0
25	0 9	7 0451	0 00	3 491	3 47	7 09 0	0 10	7 57	6 0
26	0 9	89 57	1 0	0 914	0 90	0 9364	1 10	0 902	7 0
27	9	1 89057	0	1 914	1 90	1 9364	10	1 9	0 8
28	0 9	89 57	3 00	914	90	2 9364	3 10	2 9 2	1 8
29	9	3 89 57	0 4	0 336	0 3	3 9364	4 10	3 902	2 8
30	0 9	4 89 57	1 4	1 336	1 3	4 9364	5 10	4 902	3 8
Dec 1	9	5 89057	42	336	32	5 9364	6 10	5 90	4 8
2	0 9	6 89057	3 42	3 336	3 32	6 9364	7 10	6 9 2	5 8
3	9	0 7360	0 85	0 759	74	0 78 9	0 95	0 748	6 8
4	0 9	1 73602	1 85	1 759	1 74	1 78 9	1 95	1 748	0 6
5	0 9	2 736	85	2 759	74	2 7829	2 95	2 748	1 6
6	0 9	3 736	0 7	0 182	0 16	3 78 9	3 95	3 748	2 6
7	9	4 736	1 7	1 18	1 16	4 78 9	4 95	4 748	3 6
8	0 9	5 7360	2 7	18	16	5 78 9	5 95	5 748	4 6
9	0 9	6 736	3 27	3 18	3 16	6 7829	6 95	6 748	5 6
10	0 9	58147	0 69	0 6 5	0 59	0 6 93	0 80	0 594	6 6
11	0 9	1 58147	1 69	1 605	1 59	1 6293	1 8	1 594	0 4
12	0 9	2 58147	69	2 605	59	6293	2 80	2 594	1 4
13	1 0	3 58147	1	0 8	0 01	3 6 93	3 80	3 594	4
14	1 0	4 58147	1 1	1 0 8	1 01	4 6293	4 80	4 594	3 4
15	1	5 58147	1	028	01	5 6 93	5 80	5 594	4 4
16	1 0	6 58147	3 1	3 028	3 01	6 6 93	6 80	6 594	5 4
17	1	4 691	0 54	451	0 43	0 4758	0 65	0 439	6 4
18	1	1 4 691	1 54	1 451	1 43	1 4758	1 65	1 439	0 3
19	1 0	4 691	54	451	43	2 4758	2 65	2 439	1 3
20	1 0	3 42691	3 54	3 451	3 43	3 4758	3 65	3 439	2 3
21	1 0	4 4 691	0 96	0 874	0 86	4 4758	4 65	4 439	3 3
22	1 0	5 4 691	1 96	1 874	1 86	5 4758	5 65	5 439	4 3
23	1	6 4 691	96	874	2 86	6 4758	6 65	6 439	5 3
24	1	0 7 36	0 39	0 97	0 28	0 322	0 5	0 285	6 3
25	1 0	1 7 36	1 39	1 297	1 8	1 32 2	1 5	1 85	0 1
26	1 0	7 36	39	97	28	2 32	2 50	2 285	1 1
27	1	3 7 36	3 39	3 97	3 8	3 3 2	3 50	3 285	2 1
28	1	4 7 36	0 81	7 0	0 70	4 32	4 5	4 85	3 1
29	1 0	5 7 36	1 81	1 7	1 70	5 322	5 50	5 285	4 1
30	1 0	6 7 36	81	72	2 70	6 3 2	6 50	6 285	5 1
31	1 0	0 11781	4	143	0 12	0 1687	0 36	0 131	6 1
32	1 0	1 11781	1 4	1 143	1 1	1 1687	1 36	1 131	7 1

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XIII Motion of Mean Longitude for Parts of a Day

1	2	1	2
Days	Mean Long.	Days	Mean Long.
d	°	d	°
0·00	0·00000	0·50	25·15882
·01	0·50318	·51	25·66200
·02	1·00635	·52	26·16518
·03	1·50953	·53	26·66835
·04	2·01271	·54	27·17153
·05	2·51588	·55	27·67471
0·06	3·01906	0·56	28·17788
·07	3·52224	·57	28·68106
·08	4·02541	·58	29·18423
·09	4·52859	·59	29·68741
·10	5·03176	·60	30·19059
0·11	5·53494	0·61	30·69376
·12	6·03812	·62	31·19694
·13	6·54129	·63	31·70012
·14	7·04447	·64	32·20329
·15	7·54765	·65	32·70647
0·16	8·05082	0·66	33·20965
·17	8·55400	·67	33·71282
·18	9·05718	·68	34·21600
·19	9·56035	·69	34·71918
·20	10·06353	·70	35·22235
0·21	10·56671	0·71	35·72553
·22	11·06988	·72	36·22871
·23	11·57306	·73	36·73188
·24	12·07624	·74	37·23506
·25	12·57941	·75	37·73823
0·26	13·08259	0·76	38·24141
·27	13·58576	·77	38·74459
·28	14·08894	·78	39·24776
·29	14·59212	·79	39·75094
·30	15·09529	·80	40·25412
0·31	15·59847	0·81	40·75729
·32	16·10165	·82	41·26047
·33	16·60482	·83	41·76365
·34	17·10800	·84	42·26682
·35	17·61118	·85	42·77000
0·36	18·11435	0·86	43·27318
·37	18·61753	·87	43·77635
·38	19·12071	·88	44·27953
·39	19·62388	·89	44·78271
·40	20·12706	·90	45·28588
0·41	20·63023	0·91	45·78906
·42	21·13341	·92	46·29223
·43	21·63659	·93	46·79541
·44	22·13976	·94	47·29859
·45	22·64294	·95	47·80176
0·46	23·14612	0·96	48·30494
·47	23·64929	·97	48·80812
·48	24·15247	·98	49·31129
·49	24·65565	·99	49·81447
·50	25·15882	1·00	50·31765

3	4	3	4
Days	Mean Long.	Days	Mean Long.
d	°	d	°
0·0000	0·00000	0·0050	0·25159
1	503	51	·25662
2	1006	52	·26165
3	1509	53	·26668
4	2013	54	·27172
5	2516	55	·27675
0·0006	0·03019	0·0056	0·28178
7	3522	57	·28681
8	4025	58	·29184
9	4529	59	·29687
10	5032	60	·30191
0·0011	0·05535	0·0061	0·30694
12	6038	62	·31197
13	6541	63	·31700
14	7044	64	·32203
15	7548	65	·32706
0·0016	0·08051	0·0066	0·33210
17	8554	67	·33713
18	9057	68	·34216
19	9560	69	·34719
20	·10064	70	·35222
0·0021	0·10567	0·0071	0·35726
22	·11070	72	·36229
23	·11573	73	·36732
24	·12076	74	·37235
25	·12579	75	·37738
0·0026	0·13083	0·0076	0·38241
27	·13586	77	·38745
28	·14089	78	·39248
29	·14592	79	·39751
30	·15095	80	·40254
0·0031	0·15598	0·0081	0·40757
32	·16102	82	·41260
33	·16605	83	·41764
34	·17108	84	·42267
35	·17611	85	·42770
0·0036	0·18114	0·0086	0·43273
37	·18618	87	·43776
38	·19121	88	·44280
39	·19624	89	·44783
40	·20127	90	·45286
0·0041	0·20630	0·0091	0·45789
42	·21133	92	·46292
43	·21637	93	·46795
44	·22140	94	·47299
45	·22643	95	·47802
0·0046	0·23146	0·0096	0·48305
47	·23649	97	·48808
48	·24152	98	·49311
49	·24656	99	·49814
50	0·25159	0·0100	0·50318

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XIV **Equation of Longitude** **Argument A**

		3	4			3	4			3	4			3	4
A	Eq tio	Δ o	½ Δ	A	Equa tion	Δ o o1	½ Δ²	A	Equa t n	Δ o o	½ Δ²	A	Equa t on	Δ o o	½ Δ²
0 00	0 07000	− 67 0	0 0	d 2 00	0 00396	+ 1 8	+0 4	4 00	0 09857	+ 55 8	− 1	d 6 00	1 690	− 33 0	−0 2
04	6731	66 8	0	04	449	14 5	3	04	10078	54 8	1	04	1 555	34 5	0 2
08	6463	66 8	+ 1	08	511	16 3	0 1	08	10 95	53 5	0	08	12412	36 8	0 1
12	6196	66 8	+0 1	12	580	18 3	0 1	12	105 6	5 5	0 0	12	1 262	38 5	2
16	5931	66	0 0	16	656	20 0	0	16	1 713	51 0	−0	16	12104	40 5	0 3
20	5667	65 5	+0	20	74	1 8	0 1	20	10914	49 5	−0	20	11939	42 3	0 4
0 24	0 54 7	− 65 0	+0 1	2 24	0 0830	+ 23 5	+0	4 24	0 11108	+ 48 0	0 0	6 24	0 11766	− 44 0	−0 2
28	5150	63 9	0 1	28	9 8	25 3	1	28	11 98	46 5	−0	28	11586	46 0	0 2
32	4897	63	0 1	32	1033	27 3	0 1	32	11481	45 0	0 3	32	11399	47 8	0 4
36	4648	61 8	1	36	1145	29 0	0 2	36	11657	43 0	0	36	11 04	49 3	0 1
40	4403	60 5	0	40	1 64	30 5	+0 2	40	118 7	4 0	3	40	11 03	51 3	0 1
0 44	0 04164	− 59 3	+ 1	2 44	0 01391	+ 32 5	0	4 44	0 11990	+ 39 8	−0 1	6 44	0 10796	− 52 8	−0 4
48	3930	58		48	15 4	34 3	+0 1	48	1 146	38 3	0 1	48	1 581	54 5	3
52	3701	56 3	+ 1	52	1665	36	0 0	52	1 296	37 0	0 5	52	10360	55 8	−0 1
56	3479	54 8	1	56	181	37 8	+0 1	56	1 438	34 8	0 1	56	10133	57 5	0 0
60	3 63	53 3	0 1	60	1966	39 5	0	60	12574	33 0	0	60	9901	59 0	−0 2
0 64	0 03053	− 51 8	+0 1	2 64	0 0 1 8	+ 41 3	+0 1	4 64	0 1 702	+ 31 0	−0 2	6 64	0 09663	− 60	−0 2
68	850	50	0 1	68	2296	4 8	+ 1	68	1 8 3	9 5	0	68	9419	61 5	0 0
72	653	48	0 4	72	2471	44 5	0	72	1 937	7 8	−0 1	72	917	62 5	−0 2
76	2464	46 8	0 4	76	65	46 3	+0 1	76	13044	26 0	0 0	76	8919	63 5	0 0
80	2 8	44 5	3	80	839	47 0		80	13144	23 8	−0 1	80	8663	64 5	0 0
0 84	0 0 108	− 4 8	+0 1	2 84	0 0303	+ 49 0	+	4 84	0 13 36	+ 22 3	−0 1	6 84	0 08404	− 65 3	−0 1
88	1940	41 0	0 3	88	3 32	50 5	0	88	133	0 5	0	88	814	65 8	−0 1
92	1780	39 0	0 3	92	3437	52 0	0	92	13400	18 8	0 1	92	7877	66 5	0 0
96	16 8	37 0	3	96	3647	53 3	+ 1	96	13471	16 8	0 1	96	7610	67 0	0 0
1 00	1483	35 3	0 4	3 00	386	54 3	0 1	5 00	13535	15 0	0	7 00	7342	67 0	0
1 04	01346	− 33 5	+0 3	3 04	0 0408	+ 55 8	+ 1	5 04	0 1359	+ 13 3	−0 4	7 04	0 07073	− 67 3	+0 1
08	1217	31 3	0 1	08	43 6	56 5	+0	08	13641	11 5	0	08	6804	67 3	+0 1
12	1095	29 5	0 3	12	4535	57 5	0 0	12	13683	9 8	0 1	12	6536	67 0	0 0
16	98	7 3	0 1	16	4767	58 8	+ 1	16	13719	7 5	0 5	16	6 69	66 5	0 0
20	875	5 5	0 5	20	5 03	59 3	0 1	20	13746	6 3	0 4	20	6003	66 3	+ 1
1 24	0 0 778	− 3 8	+ 1	3 24	0 05241	+ 60 0	+0 2	5 24	0 13766	+ 4 3	− 1	7 24	0 5739	− 65 8	+0 1
28	688	1 5	0 0	28	5483	60 5	0	28	13779	0		28	5478	65 0	0 0
32	6 5	19 5	+0	32	57 6	61 3	+0 1	32	13785	+ 0 8	0 4	32	52 0	64 0	0
36	531	17 5	0 3	36	597	61 5	0	36	13783	− 1 5	0 3	36	4966	63 0	0
40	465	15 8	0 1	40	62 9	62		40	13773	3 5	0 3	40	4715	62 0	+0
1 44	0 004 6	− 13 5	+ 2	3 44	0 06467	+ 6 3	+0 1	5 44	0 13755	− 5 3	−0 3	7 44	0 04469	− 61 0	+0
48	356	1 8	0 1	48	6716	6 3	+0 1	48	13731	7 3	0 4	48	4 9	59 5	0 0
52	313	9 8	0 1	52	6966	6 5		52	13698	9 3	0 4	52	3993	58 3	+ 1
56	78	7 8	0 1	56	7 5	6 3	+ 1	56	13657	11	0 3	56	3763	56 8	1
60	5	5 8	4	60	7465	62 3	−0 1	60	13609	13 3	0 4	60	3539	55 3	0 1
1 64	0 00 31	− 4 0	+0 3	3 64	0 7713	+ 61 8	−0 1	5 64	0 13552	− 15 0	−0 3	7 64	0 03321	− 54 3	+0 1
68	19	− 0	0 3	68	7961	62	−0 2	68	13488	17	0 3	68	3109	52 0	0 2
72	215	0	0 3	72	8 7	61 5	0 0	72	13416	19 0	3	72	905	5 3	0 1
76	18	+ 1 8	4	76	8451	60 8	− 1	76	13336	20 5	0 5	76	2707	48 8	0 1
80	2 9	3 8	0 4	80	8693	60 3	− 1	80	13 48	23	0	80	2515	47 0	0
1 84	0 0 248	+ 5 5	+0 3	3 84	0 0893	+ 59 5	0 0	5 84	0 13152	− 5 0	−0 2	7 84	0 02331	− 45 0	+0 2
88	73	7 3	4	88	9170	58 8	− 4	88	13048	6 8	1	88	155	43 3	0 1
92	306	9 3	0 4	92	9402	57 8	1	92	1 937	9	0	92	1985	41 5	0
96	347	11 0	0 3	96	963	57 0		96	1 817	3 8	0 1	96	1823	39 5	0
2 00	0 396	+ 1 8	+0 4	4 00	0 9857	+ 55 8	−0 1	6 00	0 12690	− 33 0	−0	8 00	0 01669	− 37 5	+0

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XV

Equations of Longitude

1	2	3	4	1	2	3	4	1	2	3	4
B	Equation	Δ	$\frac{1}{2}\Delta^2$	**B**	Equation	Δ	$\frac{1}{2}\Delta^2$	**B**	Equation	Δ	$\frac{1}{2}\Delta^2$
d	°			d	°			d	°		
0·0	0·02000	+ 148	0	**5·0**	0·00430	+ 64	+ 7	**10·0**	0·01654	− 136	+ 3
·1	2148	147	− 1	**·1**	501	77	6	**·1**	1521	130	3
·2	2293	143	2	**·2**	584	89	6	**·2**	1394	123	4
·3	2434	138	3	**·3**	679	101	6	**·3**	1275	115	5
·4	2569	131	4	**·4**	785	111	5	**·4**	1165	105	5
·5	2696	123	5	**·5**	901	121	5	**·5**	1065	94	6
0·6	0·02814	+ 112	− 6	**5·6**	0·01026	+ 129	+ 4	**10·6**	0·00977	− 82	+ 6
·7	2920	100	6	**·7**	1159	137	4	**·7**	901	70	7
·8	3014	87	7	**·8**	1299	143	3	**·8**	838	56	7
·9	3094	73	7	**·9**	1445	148	2	**·9**	789	41	8
1·0	3160	58	8	**6·0**	1595	152	2	**11·0**	756	26	8
1·1	0·03210	+ 42	− 8	**6·1**	0·01748	+ 154	+ 1	**11·1**	0·00738	− 10	+ 8
·2	3244	26	8	**·2**	1903	156	+ 1	**·2**	736	+ 7	9
·3	3262	+ 10	8	**·3**	2060	157	− 1	**·3**	751	23	8
·4	3264	− 7	9	**·4**	2216	155	1	**·4**	781	38	8
·5	3249	23	8	**·5**	2370	153	2	**·5**	827	54	8
1·6	0·03219	− 38	− 8	**6·6**	0·02521	+ 149	− 2	**11·6**	0·00889	+ 70	+ 8
·7	3174	52	7	**·7**	2668	144	3	**·7**	966	84	7
·8	3115	66	7	**·8**	2809	138	4	**·8**	1057	97	6
·9	3042	80	7	**·9**	2943	131	4	**·9**	1160	109	6
2·0	2956	92	6	**7·0**	3070	123	4	**12·0**	1275	120	5
2·1	0·02859	− 103	− 6	**7·1**	0·03189	+ 114	− 5	**12·1**	0·01400	+ 130	+ 5
·2	2751	113	5	**·2**	3297	103	6	**·2**	1534	137	3
·3	2634	121	4	**·3**	3394	92	6	**·3**	1674	143	3
·4	2509	129	3	**·4**	3480	80	6	**·4**	1819	146	+ 1
·5	2377	135	3	**·5**	3554	68	7	**·5**	1966	147	0
2·6	0·02240	− 139	− 2	**7·6**	0·03615	+ 54	− 7	**12·6**	0·02113	+ 147	− 1
·7	2099	143	2	**·7**	3662	41	7	**·7**	2259	145	2
·8	1955	145	− 1	**·8**	3696	27	8	**·8**	2402	140	3
·9	1809	146	0	**·9**	3715	+ 12	7	**·9**	2539	133	4
3·0	1663	145	+ 1	**8·0**	3720	− 2	7	**13·0**	2668	125	5
3·1	0·01519	− 143	+ 1	**8·1**	0·03711	− 16	− 7	**13·1**	0·02788	+ 115	− 6
·2	1377	140	2	**·2**	3688	30	7	**·2**	2897	103	6
·3	1239	135	3	**·3**	3651	44	7	**·3**	2994	90	7
·4	1107	130	3	**·4**	3600	58	7	**·4**	3077	76	7
·5	980	123	4	**·5**	3536	70	6	**·5**	3146	61	8
3·6	0·00861	− 115	+ 5	**8·6**	0·03460	− 82	− 6	**13·6**	0·03199	+ 46	− 8
·7	751	106	5	**·7**	3372	94	6	**·7**	3237	30	8
·8	650	96	6	**·8**	3273	104	5	**·8**	3259	+ 14	9
·9	560	85	6	**·9**	3165	113	5	**·9**	3264	− 3	8
4·0	481	73	7	**9·0**	3048	121	4	**14·0**	3254	18	8
4·1	0·00414	− 61	+ 7	**9·1**	0·02923	− 128	− 3	**14·1**	0·03228	− 34	− 8
·2	360	47	7	**·2**	2792	134	3	**·2**	3186	49	7
·3	320	34	7	**·3**	2655	139	2	**·3**	3130	63	7
·4	293	20	8	**·4**	2514	143	2	**·4**	3060	77	7
·5	281	− 6	7	**·5**	2370	145	1	**·5**	2977	89	6
4·6	0·00282	+ 9	+ 8	**9·6**	0·02225	− 146	− 1	**14·6**	0·02882	− 100	− 5
·7	298	24	8	**·7**	2079	145	+ 1	**·7**	2777	110	5
·8	329	38	7	**·8**	1935	143	1	**·8**	2662	119	4
·9	373	51	7	**·9**	1793	141	2	**·9**	2539	127	4
5·0	0·00430	+ 64	+ 7	**10·0**	0·01654	− 136	+ 3	**15·0**	0·02408	− 135	− 4

Applied Constant: +0°·02000.

XVI

1	2
C	Equation
d	°
0·0	0·00050
·2	45
·4	40
·6	35
·8	31
1·0	27
1·2	0·00024
·4	22
·6	20
·8	20
2·0	21
2·2	0·00022
·4	24
·6	27
·8	31
3·0	35
3·2	0·00040
·4	45
·6	51
·8	56
4·0	61
4·2	0·00066
·4	70
·6	73
·8	76
5·0	79
5·2	0·00080
·4	80
·6	79
·8	78
6·0	76
6·2	0·00072
·4	68
·6	64
·8	59
7·0	54
7·2	0·00049
·4	44
·6	39
·8	34
8·0	30
8·2	0·00026
·4	23
·6	21
·8	20
9·0	20
9·2	0·00021
·4	22
·6	25
·8	28
10·0	0·00032

Constant: +0°·00050.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XVII | Equation of Longitude | Argument D

D	Equation	Δ 0d 01	D	Equation	Δ 0d 01	D	Equation	Δ 0d 01	D	Equation	Δ 0d 01
0 00	0 200	+ 153	1 00	0 33393	+ 98	2 00	0 37080	− 29	3 00	0 28433	− 133
02	2 306	153	02	33587	96	02	37 0	31	02	8165	135
04	2061	153	04	33775	93	04	36955	34	04	7894	136
06	0918	153	06	33959	91	06	36885	36	06	76 1	137
08	1	15	08	34139	89	08	36810	39	08	7346	138
10	1528	153	10	34315	87	10	367 9	42	10	27068	139
0 12	1833	+ 15	1 12	0 34487	+ 85	2 12	0 36644	− 44	3 12	26789	− 140
14	2136	15	14	34653	8	14	36553	47	14	6507	141
16	2439	151	16	34815	8	16	36458	49	16	62 4	14
18	741	15	18	34973	78	18	36358	5	18	5938	144
20	3043	151	20	351 6	75	20	36 51	55	20	25650	144
0 22	3344	+ 15	1 22	0 35274	+ 73	2 22	36140	− 57	3 22	0 25362	− 145
24	3644	5	24	35418	71	24	360 5	59	24	25071	146
26	3943	149	26	35557	68	26	35904	62	26	4779	146
28	4 39	148	28	35690	66	28	35778	64	28	24485	147
30	24536	148	30	358 0	63	30	35648	67	30	24190	148
0 32	0 4830	+ 147	1 32	0 35943	+ 61	2 32	0 35512	− 69	3 32	0 23893	− 149
34	251 3	146	34	36063	59	34	35373	71	34	3596	149
36	25414	145	36	36177	56	36	352 8	73	36	23298	150
38	57 4	145	38	36 86	54	38	35080	76	38	2998	150
40	599	144	40	36391	51	40	34926	78	40	2697	151
0 42	6 78	+ 143	1 42	0 36489	+ 48	2 42	0 34768	− 80	3 42	0 2395	− 151
44	656	14	44	36584	46	44	34605	83	44	22093	151
46	6844	141	46	3667	43	46	34437	85	46	21790	152
48	27125	140	48	36757	41	48	34 65	87	48	21487	15
50	74	138	50	36835	38	50	34088	89	50	1184	152
0 52	0 27678	+ 137	1 52	0 36909	+ 36	2 52	0 33908	− 92	3 52	0 20879	− 152
54	7951	136	54	36977	33	54	337	94	54	20575	15
56	8	135	56	37 40	3	56	33533	96	56	0 70	153
58	849	133	58	37098	8	58	33339	98	58	19965	152
60	28756	13	60	37151	25	60	33142	100	60	19661	152
0 62	0 9018	+ 131	1 62	0 37197	+ 2	2 62	32940	− 102	3 62	0 19356	− 152
64	29 78	13	64	37239		64	3 735	104	64	19 5	152
66	9536	1 8	66	37 76	17	66	3 5 5	106	66	18747	15
68	9789	1 6	68	37307	15	68	3 31	108	68	18444	15
70	3 040	1 5	70	37334	1	70	32095	110	70	18141	151
0 72	0 30 88	+ 123	1 72	0 37354	+ 9	2 72	0 31874	− 111	3 72	0 17838	− 151
74	30533	1	74	3737	6	74	31650	113	74	17536	151
76	30775	1	76	37379	3	76	314 1	115	76	17234	151
78	31013	118	78	37383	+ 1	78	3119	117	78	16934	150
80	31248	117	80	37383	− 2	80	30955	118	80	16634	150
0 82	31479	+ 115	1 82	0 37377	− 4	2 82	0 30717	− 1 0	3 82	0 16336	− 149
84	317 7	113	84	37365	7	84	30475	1	84	16 39	148
86	3193	11	86	37348	10	86	3 30	123	86	15743	148
88	3 151	109	88	37325	13	88	2998	1 5	88	15448	147
90	3 368	108	90	37 98	15	90	9731	127	90	15154	146
0 92	32581	+ 106	1 92	0 37265	− 18	2 92	29476	− 128	3 92	0 14863	− 146
94	3279	104	94	372 7	21	94	9 0	129	94	14572	145
96	3 995	102	96	37183	23	96	28960	131	96	14284	144
98	33196	100	98	37134	26	98	28697	132	98	13997	143
1 00	0 33393	+ 98	2 00	0 37080	− 9	3 00	0 28433	− 133	4 00	0 13711	− 14

Appli d C t t + 0000

XVII *continued* Equation of Longitude Argument D

1	2	3	1	2	3	1	2	3	1	2	3
D	Equation	Δ $0^{d}{\cdot}01$	**D**	Equation	Δ $0^{d}{\cdot}01$	**D**	Equation	Δ $0^{d}{\cdot}01$	**D**	Equation	Δ $0^{d}{\cdot}01$
d	°		d	°		d	°		d	°	
4·00	0·13711	− 142	**5·00**	0·03520	− 49	**6·00**	0·05222	+ 81	**7·00**	0·17628	+ 152
·02	·13428	141	**·02**	3425	46	**·02**	5386	83	**·02**	·17932	152
·04	·13147	140	**·04**	3335	44	**·04**	5553	85	**·04**	·18235	152
·06	·12869	139	**·06**	3251	41	**·06**	5725	87	**·06**	·18540	153
·08	·12592	138	**·08**	3172	38	**·08**	5902	89	**·08**	·18846	153
·10	·12318	137	**·10**	3099	36	**·10**	6083	91	**·10**	·19151	153
4·12	0·12045	− 136	**5·12**	0·03030	− 33	**6·12**	0·06267	+ 93	**7·12**	0·19457	+ 153
·14	·11775	134	**·14**	2967	31	**·14**	6456	96	**·14**	·19762	153
·16	·11509	133	**·16**	2908	28	**·16**	6649	98	**·16**	·20068	153
·18	·11244	132	**·18**	2856	25	**·18**	6847	100	**·18**	·20374	153
·20	·10981	131	**·20**	2807	23	**·20**	7049	102	**·20**	·20680	153
4·22	0·10722	− 129	**5·22**	0·02764	− 20	**6·22**	0·07255	+ 104	**7·22**	0·20986	+ 153
·24	·10466	127	**·24**	2728	17	**·24**	7465	106	**·24**	·21290	152
·26	·10213	126	**·26**	2696	15	**·26**	7679	108	**·26**	·21596	153
·28	9962	125	**·28**	2670	12	**·28**	7897	110	**·28**	·21900	152
·30	9715	123	**·30**	2648	9	**·30**	8118	112	**·30**	·22204	152
4·32	0·09470	− 121	**5·32**	0·02633	− 7	**6·32**	0·08343	+ 113	**7·32**	0·22507	+ 151
·34	9230	120	**·34**	2622	4	**·34**	8571	115	**·34**	·22809	151
·36	8992	118	**·36**	2617	− 1	**·36**	8803	117	**·36**	·23111	151
·38	8758	116	**·38**	2618	+ 2	**·38**	9039	119	**·38**	·23412	150
·40	8527	114	**·40**	2623	4	**·40**	9278	121	**·40**	·23710	149
4·42	0·08301	− 113	**5·42**	0·02634	+ 7	**6·42**	0·09521	+ 122	**7·42**	0·24009	+ 149
·44	8077	111	**·44**	2651	10	**·44**	9766	123	**·44**	·24306	148
·46	7857	109	**·46**	2672	12	**·46**	·10014	125	**·46**	·24602	148
·48	7641	107	**·48**	2700	15	**·48**	·10266	127	**·48**	·24896	147
·50	7428	105	**·50**	2732	18	**·50**	·10520	128	**·50**	·25189	146
4·52	0·07220	− 103	**5·52**	0·02770	+ 20	**6·52**	0·10779	+ 130	**7·52**	0·25480	+ 145
·54	7015	101	**·54**	2813	23	**·54**	·11039	131	**·54**	·25770	144
·56	6815	99	**·56**	2861	26	**·56**	·11302	133	**·56**	·26057	143
·58	6618	98	**·58**	2915	28	**·58**	·11569	134	**·58**	·26343	142
·60	6425	96	**·60**	2973	31	**·60**	·11838	135	**·60**	·26627	141
4·62	0·06236	− 93	**5·62**	0·03038	+ 34	**6·62**	0·12109	+ 136	**7·62**	0·26908	+ 140
·64	6052	91	**·64**	3107	36	**·64**	·12383	138	**·64**	·27188	139
·66	5873	89	**·66**	3182	39	**·66**	·12659	139	**·66**	·27465	138
·68	5697	87	**·68**	3262	41	**·68**	·12937	140	**·68**	·27741	137
·70	5526	85	**·70**	3347	44	**·70**	·13218	141	**·70**	·28013	136
4·72	0·05359	− 82	**5·72**	0·03437	+ 47	**6·72**	0·13500	+ 142	**7·72**	0·28283	+ 135
·74	5197	80	**·74**	3533	49	**·74**	·13785	143	**·74**	·28551	133
·76	5040	78	**·76**	3633	52	**·76**	·14072	144	**·76**	·28816	132
·78	4887	76	**·78**	3739	54	**·78**	·14360	145	**·78**	·29078	130
·80	4738	73	**·80**	3849	57	**·80**	·14650	146	**·80**	·29337	129
4·82	0·04595	− 71	**5·82**	0·03965	+ 59	**6·82**	0·14942	+ 147	**7·82**	0·29595	+ 128
·84	4456	69	**·84**	4085	61	**·84**	·15236	147	**·84**	·29847	126
·86	4321	66	**·86**	4210	64	**·86**	·15530	148	**·86**	·30098	125
·88	4192	64	**·88**	4341	66	**·88**	·15826	149	**·88**	·30345	123
·90	4067	61	**·90**	4475	69	**·90**	·16124	149	**·90**	·30589	121
4·92	0·03948	− 58	**5·92**	0·04615	+ 71	**6·92**	0·16423	+ 150	**7·92**	0·30830	+ 120
·94	3834	56	**·94**	4760	74	**·94**	·16723	150	**·94**	·31068	118
·96	3724	54	**·96**	4909	76	**·96**	·17024	151	**·96**	·31302	116
·98	3619	51	**·98**	5063	78	**·98**	·17326	151	**·98**	·31532	114
5·00	0·03520	− 49	**6·00**	0·05222	+ 81	**7·00**	0·17628	+ 152	**8·00**	0·31758	+ 112

Applied Constant: $+0^{\circ}{\cdot}20000$.

SATELLITE III

Tables of Longıtude, Latıtude, and Radıus Vector

XVIII Equatıon of Longıtude **Argument E**

		3	4			3	4			3	4			3	4
E	Equa t on	Δ 0 01	½Δ²	**E**	Equa tı	Δ d 0	½Δ²	**E**	Equ t on	Δ 0d 01	½Δ²	**E**	Equ tıon	Δ 0	½Δ²
0 00	8 0	+64 8		**2 00**	15 50	-1	-0 3	d **4 00**	53 7	-6 4	+ 1	d **6 00**	01734	+34 3	+0 3
04	8 59	64 6		**04**	15198	14 1	0 3	**04**	5087	59 4	0 1	**04**	1874	36 0	0 2
08	8517	64 6	0	**08**	15 37	16 5	4	**08**	485	58 4	0 1	**08**	02	37 6	0 3
12	8777	64 5	-0 1	**12**	15066	18 6	3	**12**	4619	57 5	0 1	**12**	178	39 9	0 1
16	9 33	64 1	0 0	**16**	14988	0 9	3	**16**	4392	56 5	1	**16**	341	41 5	0
20	9 90	64 0	0 0	**20**	14899	23 1	0 3	**20**	4167	55 5	1	**20**	511	43 5	0 1
0 24	09545	+63 4	- 1	**2 24**	0 14803	-25 1	-0 3	**4 24**	0 03948	-54 1	+ 2	**6 24**	0 0 689	+45 0	+ 2
28	9797	63 0	1	**28**	14698	7 1	3	**28**	3734	5 8	0 1	**28**	871	46 5	0 2
32	1 049	62 4	1	**32**	14586	9 1	0 3	**32**	35 6	51 5	0 1	**32**	3061	48 1	0 2
36	96	61 5	1	**36**	14465	31 1	3	**36**	3322	5	0	**36**	3 56	49 5	0
40	10541	60 8	1	**40**	14337	33 1	3	**40**	31 6	48 5	2	**40**	3457	51 1	0 2
0 44	1 78	+59 9	-0 1	**2 44**	14 0	-35 1	- 3	**4 44**	0 02934	-47 1	+0 3	**6 44**	0 03665	+52 5	+0 1
48	110	59	0 1	**48**	14056	37 0	0 3	**48**	2749	45 5	0	**48**	3877	53 8	0 1
52	11 54	58 3	0 1	**52**	139 4	38 9	0	**52**	570	43 9	0	**52**	4095	55 0	0 1
56	1 486	57 4	0 1	**56**	13745	4 5		**56**	398	4	0	**56**	4317	56 1	0 2
60	11713	56 0	0 1	**60**	13580	4 3	0 1	**60**	34	40 4		**60**	4544	57 4	0 1
0 64	0 11934	+54 9	-0 1	**2 64**	0 13407	-44 0	-0 2	**4 64**	0 02075	-38 6	+0 2	**6 64**	0 04776	+58 4	+0 1
68	1 15	53 6	0 2	**68**	13 28	45 6	0 2	**68**	1925	36 5	0 2	**68**	5011	59 4	+0 1
72	12363	5 3	0 1	**72**	1304	47 4	0 1	**72**	1783	34 9	0 2	**72**	5251	60 1	0 0
76	12570	5 9	0 1	**76**	12849	48 9	0 1	**76**	1646	33 0	0	**76**	5492	60 8	+0 1
80	1 770	49 3	1	**80**	1 651	50 3	0 1	**80**	1519	31 0	0 3	**80**	5737	61 6	0 0
0 84	1 964	+47 9	- 1	**2 84**	0 1 447	-51 6	-0	**4 84**	0 1398	-29 1	+0 2	**6 84**	0 05985	+62 5	+0 1
88	13153	46 5	0 1	**88**	12 38	53 0	1	**88**	1286	6 9	0 4	**88**	6237	63 1	0 1
92	13335	44 8	0	**92**	120 3	54 3	1	**92**	1183	24 6	0 3	**92**	649	63 4	0 1
96	13511	43 1	0	**96**	11804	55 5	0 1	**96**	1089	5	0 3	**96**	6745	63 6	+0 1
1 00	13680	41 4	0	**3 00**	11579	56 5	0 2	**5 00**	1 03	20 5	3	**7 00**	6999	63 8	0 0
1 04	13842	+39 6	-0	**3 04**	0 11352	-57 6	- 1	**5 04**	0 00925	-18 4	+0 4	**7 04**	0 07255	+64 5	+0 1
08	13997	37 8	0 3	**08**	11118	58 9	-0 1	**08**	856	16 3	3	**08**	7515	64 7	0 0
12	14144	35 9	0	**12**	10881	59 6	0 0	**12**	795	14	0 3	**12**	7773	64 6	0 0
16	14 84	34 0	0 3	**16**	10641	6 3	-0 1	**16**	744	11 6	3	**16**	803	65 0	0
20	14416	31 9	0 3	**20**	10399	61 1	0 1	**20**	70	9 4	0 3	**20**	8293	64 9	0 0
1 24	0 14539	+29 9	-0 3	**3 24**	0 1015	-62 0	-0 1	**5 24**	0 00669	- 7 3	+0 3	**7 24**	0 08551	+64 8	0 0
28	14655	28 1	0 3	**28**	9903	62 5	0 0	**28**	644	5 0	0 3	**28**	8811	64 5	0 0
32	14764	6 1	3	**32**	965	63 1	0 0	**32**	6 9	2 6	0 3	**32**	9 67	64 0	0 0
36	14864	23 6	0 4	**36**	9398	63 5	0	**36**	6 3	- 0 4	0 3	**36**	93 3	63 9	0 0
40	14953	21 4	3	**40**	9144	64 0	0	**40**	626	+ 1 9	0 3	**40**	9578	63 4	-0 1
1 44	15 35	+19 5	-0 3	**3 44**	0 08886	-64 5	0 0	**5 44**	0 00638	+ 4 1	+0 4	**7 44**	0 09830	+62 9	-0 1
48	151 9	17 4	3	**48**	8628	64 4	0 0	**48**	659	6 6	0 3	**48**	10 81	6 3	0 0
52	15174	15 1	3	**52**	8371	64 5		**52**	691	9	4	**52**	103 8	61 5	-0 1
56	15 3	1 9	0 3	**56**	811	64 6	0	**56**	731	11 0	0 3	**56**	1 573	60 6	0 1
60	15 77	1 6	0 3	**60**	7854	64 6	0 0	**60**	779	13 1	0 3	**60**	10813	59 8	0 1
1 64	0 15315	+ 7 6	- 3	**3 64**	07595	-64 6	0 0	**5 64**	0 00836	+15 1	+0 3	**7 64**	0 11051	+59	-0 1
68	15341	6	0 3	**68**	7337	64 4	0 0	**68**	900	17 3	0 3	**68**	11 85	58 0	0 1
72	15363	4 5	0 3	**72**	7 80	64 3	0	**72**	974	19 8	0 4	**72**	11515	57 0	1
76	15374	+ 1 8	3	**76**	68 3	63 9	+ 1	**76**	1058	2 0	0 3	**76**	11741	56 0	0 1
80	15377	- 0 4	3	**80**	6569	63 5	0	**80**	1150	4 0	3	**80**	11963	54 8	0 1
1 84	15371	- 2 8	- 4	**3 84**	0 06315	-63 0	0	**5 84**	0 01 50	+ 6 1	+ 3	**7 84**	0 12179	+53 5	-0 1
88	15355	5 4	4	**88**	6065	62 4	+ 1	**88**	1359	8 1	0	**88**	12391	5 3	0
92	153 8	7 6	3	**92**	5816	61 8	0 1	**92**	1476	30 1	0 3	**92**	12597	50 6	0 2
96	15294	9 8	0 3	**96**	5570	61 1	0 1	**96**	1600	32 3	2	**96**	1 796	49 0	0 1
2 00	15 5	-12	-0 3	**4 00**	0 53 7	-60 4	+0 1	**6 00**	0 01734	+34 3	+ 3	**8 00**	0 12989	+47 5	-0

Ap1 ll d C t t + 8000

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

Equations of Longitude

XIX

1	2	1	2
F	Equation	**F**	Equation
d	°	d	°
0·0	0·00100	**4·0**	0·00136
·2	86	**·2**	148
·4	72	**·4**	158
·6	60	**·6**	166
·8	48	**·8**	173
1·0	39	**5·0**	177
1·2	0·00031	**5·2**	0·00178
·4	26	**·4**	177
·6	23	**·6**	173
·8	22	**·8**	167
2·0	24	**6·0**	159
2·2	0·00029	**6·2**	0·00149
·4	36	**·4**	137
·6	45	**·6**	124
·8	56	**·8**	110
3·0	68	**7·0**	96
3·2	0·00081	**7·2**	0·00082
·4	95	**·4**	69
·6	109	**·6**	57
·8	123	**·8**	46
4·0	0·00136	**8·0**	0·00037

Applied Constant: +0°·00100.

XX

1	2	1	2
G	Equation	**G**	Equation
d	°	d	°
0·0	0·00050	**4·0**	0·00066
·2	44	**·2**	71
·4	38	**·4**	76
·6	32	**·6**	80
·8	27	**·8**	83
1·0	22	**5·0**	84
1·2	0·00019	**5·2**	0·00085
·4	17	**·4**	85
·6	15	**·6**	83
·8	15	**·8**	80
2·0	16	**6·0**	76
2·2	0·00018	**6·2**	0·00072
·4	21	**·4**	67
·6	25	**·6**	61
·8	30	**·8**	55
3·0	35	**7·0**	48
3·2	0·00041	**7·2**	0·00042
·4	48	**·4**	36
·6	54	**·6**	31
·8	60	**·8**	26
4·0	0·00066	**8·0**	0·00022

Applied Constant : +0°·00050.

XXI

1	2	1	2
H	Equation	**H**	Equation
d	°	d	°
0·0	0·00100	**4·0**	0·00081
·2	109	**·2**	72
·4	118	**·4**	65
·6	127	**·6**	58
·8	135	**·8**	53
1·0	141	**5·0**	49
1·2	0·00147	**5·2**	0·00047
·4	151	**·4**	46
·6	153	**·6**	47
·8	154	**·8**	50
2·0	153	**6·0**	54
2·2	0·00151	**6·2**	0·00059
·4	147	**·4**	66
·6	141	**·6**	74
·8	134	**·8**	83
3·0	127	**7·0**	92
3·2	0·00118	**7·2**	0·00101
·4	109	**·6**	110
·6	99	**·4**	120
·8	90	**·8**	128
4·0	0·00081	**8·0**	0·00136

Applied Constant : +0°·00100.

XXII

Argument I

1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
I	Equation	Δ $0^{d}\cdot1$	**I**	Equation	Δ $0^{d}\cdot1$	**I**	Equation	Δ $0^{d}\cdot1$	**I**	Equation	Δ $0^{d}\cdot1$	**I**	Equation	Δ $0^{d}\cdot1$
d	°		d	°		d	°		d	°		d	°	
0·0	0·00700	− 7,6	**11·0**	0·00107	− 1,4	**22·0**	0·00473	+ 7,0	**33·0**	0·01206	+ 4,1	**44·0**	0·01121	− 5,4
0·5	662	7,5	**11·5**	101	1,0	**22·5**	508	7,2	**33·5**	1225	3,7	**44·5**	1093	5,7
1·0	625	7,5	**12·0**	97	− 0,5	**23·0**	545	7,4	**34·0**	1243	3,4	**45·0**	1064	6,0
1·5	587	7,5	**12·5**	96	0,0	**23·5**	582	7,5	**34·5**	1259	2,9	**45·5**	1033	6,4
2·0	550	7,3	**13·0**	97	+ 0,4	**24·0**	620	7,5	**35·0**	1272	2,4	**46·0**	1000	6,6
2·5	514	7,1	**13·5**	100	0,9	**24·5**	657	7,4	**35·5**	1283	2,0	**46·5**	967	6,8
3·0	0·00479	− 7,0	**14·0**	0·00106	+ 1,4	**25·0**	0·00694	+ 7,5	**36·0**	0·01292	+ 1,5	**47·0**	0·00932	− 7,0
3·5	444	6,9	**14·5**	114	1,8	**25·5**	732	7,6	**36·5**	1298	1,0	**47·5**	897	7,1
4·0	410	6,7	**15·0**	124	2,3	**26·0**	770	7,5	**37·0**	1302	0,6	**48·0**	861	7,3
4·5	377	6,4	**15·5**	137	2,8	**26·5**	807	7,4	**37·5**	1304	+ 0,1	**48·5**	824	7,4
5·0	346	6,1	**16·0**	152	3,2	**27·0**	844	7,3	**38·0**	1303	− 0,4	**49·0**	787	7,4
5·5	0·00316	− 5,8	**16·5**	0·00169	+ 3,6	**27·5**	0·00880	+ 7,2	**38·5**	0·01300	− 0,8	**49·5**	0·00750	− 7,5
6·0	288	5,5	**17·0**	188	4,0	**28·0**	916	7,1	**39·0**	1295	1,3	**50·0**	712	7,6
6·5	261	5,2	**17·5**	209	4,4	**28·5**	951	6,9	**39·5**	1287	1,8	**50·5**	674	7,6
7·0	236	4,8	**18·0**	232	4,8	**29·0**	985	6,7	**40·0**	1277	2,3	**51·0**	636	7,5
7·5	213	4,4	**18·5**	257	5,1	**29·5**	1018	6,4	**40·5**	1264	2,7	**51·5**	599	7,4
8·0	0·00192	− 4,2	**19·0**	0·00283	+ 5,4	**30·0**	0·01049	+ 6,1	**41·0**	0·01250	− 3,0	**52·0**	0·00562	− 7,3
8·5	171	3,8	**19·5**	311	5,8	**30·5**	1079	5,9	**41·5**	1234	3,5	**52·5**	526	7,2
9·0	154	3,2	**20·0**	341	6,2	**31·0**	1108	5,6	**42·0**	1215	4,0	**53·0**	490	7,1
9·5	139	2,8	**20·5**	373	6,4	**31·5**	1135	5,2	**42·5**	1194	4,4	**53·5**	455	7,0
10·0	126	2,4	**21·0**	405	6,5	**32·0**	1160	4,9	**43·0**	1171	4,7	**54·0**	420	6,8
10·5	0·00115	− 1,9	**21·5**	0·00438	+ 6,8	**32·5**	0·01184	+ 4,6	**43·5**	0·01147	− 5,0	**54·5**	0·00387	− 6,5
11·0	0·00107	− 1,4	**22·0**	0·00473	+ 7,0	**33·0**	0·01206	+ 4,1	**44·0**	0·01121	− 5,4	**55·0**	0·00355	− 6,3

Applied Constant: +0°·00700.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

Equations of Longitude

XXIII

J	Equation	J	Equation
0	0 00050	250	0 00075
5	47	255	77
10	44	260	79
15	41	265	81
20	39	270	82
25	36	275	83
30	0 00034	280	0 00084
35	31	285	85
40	9	290	86
45	7	295	86
50	5	300	86
55	0 00 23	305	0 00086
60	1	310	86
65	19	315	85
70	18	320	84
75	17	325	83
80	0 00016	330	0 00082
85	15	335	81
90	14	340	79
95	14	345	78
100	14	350	76
105	0 00014	355	0 00074
110	14	360	7
115	15	365	7
120	16	370	67
125	17	375	65
130	0 00018	380	0 0006
135	19	385	59
140	1	390	56
145	3	395	54
150	4	400	51
155	0 00026	405	0 00048
160	9	410	45
165	31	415	43
170	33	420	40
175	36	425	37
180	0 00039	430	0 00034
185	4	435	3
190	44	440	29
195	47	445	7
200	5	450	5
205	0 00053	455	0 000 3
210	55	460	21
215	58	465	19
220	61	470	18
225	64	475	17
230	0 00066	480	0 00016
235	69	485	15
240	71	490	15
245	73	495	14
250	0 00075	500	0 00014

Appli d C t t + 5

XXIV

K	Equation	3 Δ 1	K	Equation	3 Δ 1d
0	0 00400	− 4 6	250	0 00495	+ 4 4
5	377	4 6	255	516	4 3
10	354	4 5	260	538	4 1
15	33	4 4	265	558	4 0
20	310	4 4	270	578	3 8
25	88	4 3	275	596	3 6
30	0 00 67	− 4 2	280	0 0 614	+ 3 5
35	47	4 0	285	631	3 3
40	2 7	3 9	290	647	3 1
45	208	3 7	295	66	2 8
50	190	3 4	300	675	2 6
55	0 00173	− 3 3	305	0 00687	+ 2 3
60	157	3 1	310	698	2
65	14	9	315	7 7	1 7
70	1 8	6	320	715	1 4
75	116	3	325	721	1 1
80	0 00105	− 2 1	330	0 00726	+ 0 8
85	95	1 8	335	7 9	0 5
90	87	1 5	340	731	+ 0 2
95	8	1 2	345	731	0 0
100	75	0 9	350	731	− 0 4
105	0 00071	− 0 6	355	0 00728	− 0 8
110	69	− 0 3	360	723	1 1
115	68	0	365	717	1 3
120	69	+ 3	370	710	1 6
125	71	0 6	375	701	1 9
130	0 00075	+ 1 0	380	0 00691	− 2
135	81	1 3	385	679	5
140	88	1 6	390	666	2 8
145	97	1 9	395	651	3 0
150	107	2 2	400	636	3 2
155	0 00119	+ 2 4	405	0 00619	− 3 4
160	131	2 7	410	6	3 6
165	145	2 9	415	583	3 8
170	160	3 1	420	564	4 0
175	176	3 3	425	544	4 1
180	0 00193	+ 3 6	430	0 00523	− 4
185	211	3 8	435	50	4 3
190	31	4	440	480	4 4
195	251	4 1	445	458	4 5
200	7	4 2	450	435	4 5
205	0 00 93	+ 4 3	455	0 0041	− 4 6
210	315	4 4	460	389	4 5
215	337	4 5	465	366	4 5
220	360	4 5	470	344	4 4
225	38	4 5	475	3	4 4
230	0 0405	+ 4 5	480	0 00300	− 4 3
235	428	4 6	485	278	4 3
240	451	4 5	490	57	4 1
245	473	4 4	495	237	4 0
250	0 00495	+ 4 4	500	0 00217	− 3 8

Appli d C t t + 004

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XXV Equations of Longitude

1	2	3	1	2	3
L	Equation	Δ 1^d	L	Equation	Δ 1^d
d	°		d	°	
0	0·00700	+ 8,8	250	0·00622	− 8,6
5	744	8,7	255	579	8,6
10	787	8,7	260	536	8,5
15	830	8,6	265	494	8,3
20	873	8,5	270	453	8,1
25	915	8,4	275	413	7,9
30	0·00957	+ 8,1	280	0·00374	− 7,7
35	997	7,8	285	336	7,4
40	1035	7,6	290	300	7,1
45	1072	7,3	295	265	6,7
50	1108	7,0	300	233	6,3
55	0·01142	+ 6,6	305	0·00202	− 5,9
60	1174	6,2	310	174	5,5
65	1204	5,8	315	148	5,0
70	1232	5,4	320	124	4,5
75	1258	4,9	325	102	4,0
80	0·01281	+ 4,4	330	0·00084	− 3,5
85	1302	3,9	335	68	3,0
90	1320	3,4	340	54	2,5
95	1336	2,9	345	43	1,9
100	1349	2,4	350	35	1,4
105	0·01359	+ 1,8	355	0·00030	− 0,8
110	1367	1,2	360	27	− 0,2
115	1372	0,6	365	28	+ 0,4
120	1373	+ 0,1	370	31	1,0
125	1372	− 0,5	375	37	1,5
130	0·01368	− 1,1	380	0·00046	+ 2,1
135	1361	1,6	385	57	2,6
140	1352	2,2	390	72	3,2
145	1339	2,8	395	89	3,7
150	1324	3,3	400	109	4,2
155	0·01306	− 3,8	405	0·00131	+ 4,7
160	1286	4,3	410	156	5,2
165	1363	4,8	415	182	5,6
170	1238	5,2	420	212	6,0
175	1211	5,6	425	243	6,4
180	0·01182	− 6,1	430	0·00276	+ 6,8
185	1150	6,6	435	311	7,1
190	1116	6,9	440	347	7,5
195	1081	7,2	445	385	7,8
200	1044	7,5	450	425	8,0
205	0·01006	− 7,8	455	0·00466	+ 8,2
210	966	8,1	460	507	8,4
215	925	8,3	465	550	8,6
220	883	8,5	470	593	8,6
225	840	8,6	475	637	8,7
230	0·00797	− 8,6	480	0·00680	+ 8,7
235	754	8,7	485	724	8,8
240	710	8,7	490	768	8,7
245	666	8,6	495	811	8,6
250	0·00622	− 8,6	500	0·00854	+ 8,5

Applied Constant : +0°·00700.

XXVI

1	2	3	1	2	3
M	Equation	Δ 1^d	M	Equation	Δ 1^d
d	°		d	°	
0	0·00300	+ 3,8	250	0·00273	− 3,8
5	319	3,8	255	254	3,8
10	338	3,8	260	235	3,7
15	357	3,7	265	217	3,6
20	375	3,7	270	199	3,6
25	393	3,6	275	181	3,5
30	0·00411	+ 3,5	280	0·00164	− 3,4
35	428	3,4	285	147	3,2
40	445	3,3	290	132	3,1
45	461	3,2	295	117	3,0
50	477	3,0	300	102	2,8
55	0·00491	+ 2,8	305	0·00088	− 2,6
60	505	2,7	310	76	2,4
65	518	2,5	315	64	2,2
70	530	2,3	320	54	2,1
75	541	2,1	325	44	1,9
80	0·00552	+ 1,9	330	0·00035	− 1,7
85	561	1,7	335	27	1,4
90	569	1,5	340	21	1,2
95	576	1,3	345	16	0,9
100	582	1,1	350	12	0,7
105	0·00587	+ 0,8	355	0·00009	− 0,5
110	590	0,6	360	7	− 0,2
115	592	+ 0,3	365	7	+ 0,1
120	593	0,0	370	8	0,3
125	592	− 0,2	375	10	0,5
130	0·00591	− 0,5	380	0·00013	+ 0,8
135	588	0,7	385	18	1,0
140	584	0,9	390	23	1,3
145	579	1,1	395	30	1,5
150	573	1,3	400	38	1,8
155	0·00566	− 1,5	405	0·00048	+ 2,1
160	558	1,8	410	57	2,2
165	548	2,0	415	68	2,3
170	538	2,2	420	80	2,5
175	526	2,4	425	93	2,7
180	0·00513	− 2,6	430	0·00107	+ 2,9
185	499	2,8	435	122	3,0
190	485	3,0	440	137	3,2
195	470	3,1	445	153	3,3
200	454	3,2	450	170	3,4
205	0·00438	− 3,3	455	0·00187	+ 3,5
210	421	3,5	460	205	3,6
215	403	3,6	465	223	3,6
220	385	3,6	470	241	3,7
225	367	3,7	475	260	3,8
230	0·00348	− 3,7	480	0·00279	+ 3,8
235	330	3,7	485	298	3,8
240	311	3,8	490	317	3,8
245	292	3,8	495	336	3,7
250	0·00273	− 3,8	500	0·00354	+ 3,6

Applied Constant : +0°·00300.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XXVII Equation of Longitude Argument α

		3			3			3			3			3
α	Equation	$\frac{\Delta}{10}$	α	Equation	$\frac{\Delta}{0^d}$	α	Equation	$\frac{\Delta}{0^d}$		Equation	$\frac{\Delta}{10^d}$	α	Equation	$\frac{\Delta}{10}$
						d						d		
0	0 01400	−21	1000	0 00054	−	2000	0 01098	+18	3000	0 631	+ 8	4000	0 02058	−18
20	1358	1	1020	5	− 1	2020	1134	18	3020	647	8	4020	022	18
40	1317	1	1040	52		2040	1170	18	3040	2661	7	4040	1985	19
60	1 76	21	1060	5	+ 1	2060	1 07	18	3060	674	6	4060	1947	19
80	1 35	1	1080	54	1	2080	1 4	18	3080	686	6	4080	19 9	19
100	1194	1	1100	57		2100	1279	19	3100	697	5	4100	1871	19
120	0 01153	−20	1120	0 00 61	+	2120	0 01316	+18	3120	0 2707	+ 5	4120	0 01832	−2
140	1113	0	1140	66	3	2140	135	18	3140	716	4	4140	1793	20
160	1073	0	1160	7	4	2160	1389	18	3160	723	4	4160	1753	20
180	1033	20	1180	8	4	2180	1425	18	3180	730	3	4180	1713	0
200	994	2	1200	88	4	2200	1462	18	3200	736	3	4200	1673	20
220	0 0 955	− 0	1220	0 0 097	+ 5	2220	0 01498	+18	3220	0 0 74	+ 2	4220	0 01633	−21
240	915	20	1240	107	6	2240	1535	18	3240	2744		4240	1591	21
260	877	19	1260	119	6	2260	1571	18	3260	2747	1	4260	1551	1
280	84	19	1280	131	7	2280	1607	18	3280	2748	+ 1	4280	1509	21
300	80	19	1300	145	7	2300	1644	18	3300	749	0	4300	1468	1
320	0 00765	−19	1320	0 00159	+ 8	2320	0 01680	+18	3320	0 02747	− 1	4320	0 01426	−21
340	7 8	18	1340	175	8	2340	1716	18	3340	2745	2	4340	1384	21
360	693	18	1360	191	9	2360	1751	18	3360	2741		4360	1343	1
380	659	17	1380	209	9	2380	1787	18	3380	737	3	4380	130	21
400	625	17	1400	6	9	2400	1821	17	3400	2731	3	4400	1261	21
420	0 0059	−16	1420	0 00246	+10	2420	0 01856	+18	3420	0 0 724	− 4	4420	0 01219	−21
440	560	16	1440	66	10	2440	1891	17	3440	2716	4	4440	1179	0
460	5 9	16	1460	87	11	2460	1925	17	3460	2707	5	4460	1138	20
480	498	15	1480	3 9	11	2480	1959	17	3480	2697	6	4480	1098	20
500	468	15	1500	331	1	2500	199	17	3500	2685	6	4500	1058	0
520	0 00440	−14	1520	0 00355	+12	2520	0 020 5	+16	3520	0 02672	− 7	4520	0 01018	−20
540	411	14	1540	378	12	2540	057	16	3540	2659	7	4540	979	20
560	383	14	1560	404	13	2560	2090	16	3560	643	8	4560	939	2
580	357	13	1580	430	13	2580	21 1	16	3580	628	8	4580	900	19
600	332	1	1600	456	13	2600	152	15	3600	610	9	4600	86	19
620	0 00309	−12	1620	0 00483	+14	2620	0 02182	+15	3620	0 0 592	−10	4620	0 00824	−19
640	285	12	1640	511	14	2640	13	15	3640	57	10	4640	788	18
660	263	11	1660	539	14	2660	2243	15	3660	2552	11	4660	751	18
680	41	11	1680	568	15	2680	271	14	3680	530	11	4680	715	18
700	1	10	1700	597	15	2700	299	14	3700	2508	12	4700	681	17
720	0 0 01	−10	1720	0 00628	+15	2720	0 0 326	+14	3720	0 0 484	− 1	4720	0 00646	−17
740	183	9	1740	658	16	2740	2353	14	3740	2459	13	4740	613	17
760	167	8	1760	690	16	2760	2380	13	3760	434	13	4760	579	17
780	151	8	1780	722	16	2780	405	1	3780	4 7	14	4780	547	16
800	136	7	1800	754	16	2800	429	12	3800	38	14	4800	517	15
820	0 001	− 7	1820	0 0 786	+17	2820	0 02453	+12	3820	0 02351	−15	4820	0 00487	−15
840	110	6	1840	8 0	17	2840	2476	12	3840	2322	15	4840	458	15
860	99	5	1860	853	17	2860	2499	11	3860	2 91	15	4860	428	15
880	90	5	1880	887	17	2880	2521	11	3880	2261	16	4880	400	14
900	81	4	1900	9	18	2900	541	10	3900	28	17	4900	373	13
920	0 00073	− 4	1920	0 00957	+18	2920	0 02561	+10	3920	0 02195	−17	4920	0 00347	−13
940	67	3	1940	99	18	2940	2579	9	3940	216	17	4940	323	12
960	6		1960	10 7	18	2960	598	9	3960	128	17	4960	299	12
980	58	2	1980	106	18	2980	2615	8	3980	2093	18	4980	276	11
1000	0 00054	− 2	2000	0 01098	+18	3000	0 02631	+ 8	4000	0 02058	−18	5000	0 00254	−11

Appl d C t t + 400

Tables of Longitude, Latitude, and Radius Vector

XXVIII — Equation of Longitude — Argument N

1	2	3	1	2	3	1	2	3
N	Equation	Δ	**N**	Equation	Δ	**N**	Equation	Δ
	°			°			°	
1850·0	0·01763	+ 15	**1900·0**	0·01301	− 22	**1950·0**	0·00681	+ 19
1·0	1776	11	**1·0**	1278	24	**1·0**	701	21
2·0	1784	10	**2·0**	1253	25	**2·0**	722	23
3·0	1795	9	**3·0**	1229	25	**3·0**	747	27
4·0	1801	6	**4·0**	1204	27	**4·0**	775	29
5·0	1806	6	**5·0**	1176	29	**5·0**	805	31
1856·0	0·01813	+ 7	**1906·0**	0·01146	− 30	**1956·0**	0·00837	+ 33
7·0	1820	7	**7·0**	1116	32	**7·0**	870	34
8·0	1826	6	**8·0**	1083	33	**8·0**	905	35
9·0	1831	8	**9·0**	1050	34	**9·0**	940	36
1860·0	1841	10	**1910·0**	1016	36	**1960·0**	977	37
1861·0	0·01851	+ 9	**1911·0**	0·00979	− 36	**1961·0**	0·01014	+ 36
2·0	1859	9	**2·0**	944	36	**2·0**	1049	36
3·0	1868	9	**3·0**	908	35	**3·0**	1085	35
4·0	1877	9	**4·0**	874	33	**4·0**	1118	32
5·0	1886	9	**5·0**	842	32	**5·0**	1149	33
1866·0	0·01895	+ 9	**1916·0**	0·00810	− 32	**1966·0**	0·01183	+ 31
7·0	1903	8	**7·0**	779	29	**7·0**	1212	30
8·0	1911	7	**8·0**	752	26	**8·0**	1242	29
9·0	1917	6	**9·0**	728	23	**9·0**	1268	26
1870·0	1922	3	**1920·0**	706	21	**1970·0**	1294	26
1871·0	0·01923	+ 1	**1921·0**	0·00686	− 19	**1971·0**	0·01320	+ 24
2·0	1923	− 2	**2·0**	669	14	**2·0**	1342	23
3·0	1919	6	**3·0**	658	11	**3·0**	1366	23
4·0	1912	8	**4·0**	648	10	**4·0**	1388	23
5·0	1903	10	**5·0**	638	8	**5·0**	1412	25
1876·0	0·01892	− 14	**1926·0**	0·00632	− 5	**1976·0**	0·01438	+ 25
7·0	1876	18	**7·0**	628	3	**7·0**	1462	25
8·0	1857	20	**8·0**	627	− 1	**8·0**	1487	26
9·0	1837	23	**9·0**	626	0	**9·0**	1514	28
1880·0	1812	26	**1930·0**	627	+ 1	**1980·0**	1543	30
1881·0	0·01786	− 28	**1931·0**	0·00628	+ 1	**1981·0**	0·01573	+ 31
2·0	1757	28	**2·0**	628	2	**2·0**	1604	31
3·0	1730	29	**3·0**	631	+ 2	**3·0**	1635	34
4·0	1699	31	**4·0**	631	0	**4·0**	1671	35
5·0	1668	30	**5·0**	631	0	**5·0**	1704	34
1886·0	0·01640	− 30	**1936·0**	0·00631	− 1	**1986·0**	0·01738	+ 35
7·0	1608	31	**7·0**	630	1	**7·0**	1773	34
8·0	1579	28	**8·0**	629	2	**8·0**	1806	34
9·0	1552	28	**9·0**	627	2	**9·0**	1841	34
1890·0	1524	27	**1940·0**	626	1	**1990·0**	1873	31
1891·0	0·01499	− 26	**1941·0**	0·00625	− 3	**1991·0**	0·01903	+ 29
2·0	1472	26	**2·0**	621	− 2	**2·0**	1931	28
3·0	1448	23	**3·0**	621	+ 2	**3·0**	1959	26
4·0	1426	22	**4·0**	625	3	**4·0**	1982	22
5·0	1404	22	**5·0**	626	4	**5·0**	2002	20
1896·0	0·01383	− 21	**1946·0**	0·00632	+ 8	**1996·0**	0·02021	+ 17
7·0	1363	21	**7·0**	641	10	**8·0**	2035	12
8·0	1342	21	**8·0**	651	12	**7·0**	2044	9
9·0	1322	21	**9·0**	664	15	**9·0**	2053	8
1900·0	0·01301	− 22	**1950·0**	0·00681	+ 19	**2000·0**	0·02059	+ 4

Applied Constant: +0°·01400.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XXIX Equation of Longitude Argument O

O	Equation	Δ 0 01	O	Equation	Δ 0	O	Equation	Δ 1	O	Equation	Δ d	O	Equation	Δ 0 0
		3			3	d		3			3	d		3
0 00	0 04000	−7	**1 00**	0 099	+13	**2 00**	0 05440	+65	**3 00**	0 7369	−37	**4 00**	0 01317	−51
02	3861	70	**02**	1 7	15	**02**	5569	64	**02**	7 94	39	**02**	1216	50
04	37 1	70	**04**	16	18	**04**	5696	63	**04**	7 14	41	**04**	1118	48
06	3583	69	**06**	198		**06**	58 1	6	**06**	713	44	**06**	1025	46
08	3444	69	**08**	4		**08**	5944	61	**08**	7 4	45	**08**	935	45
10	33 7	69	**10**	87	5	**10**	6064	60	**10**	6951	47	**10**	847	43
0 12	0 03170	−68	**1 12**	00339	+7	**2 12**	0 0618	+58	**3 12**	0 06856	−49	**4 12**	0 00764	−41
14	3 34	68	**14**	395	9	**14**	6 97	57	**14**	6757	50	**14**	685	38
16	899	67	**16**	455	31	**16**	64 9	55	**16**	6655	52	**16**	611	36
18	766	66	**18**	5 0	34	**18**	6518	54	**18**	6550	53	**18**	54	34
20	634	66	**20**	589	36	**20**	66 5	53	**20**	6442	55	**20**	474	3
0 22	0 02504	−65	**1 22**	0 0 663	+38	**2 22**	0 67 8	+51	**3 22**	0 06330	−57	**4 22**	0 00411	−3
24	376	64	**24**	740	40	**24**	68 7	49	**24**	6216	58	**24**	355	7
26	50	63	**26**	8	4	**26**	69 3	47	**26**	6099	59	**26**	3	6
28	1 6	6	**28**	907	44	**28**	7 16	45	**28**	5980	61	**28**	53	3
30	2004	61	**30**	997	46	**30**	7104	43	**30**	5857	6	**30**	10	21
0 32	0 01885	59	**1 32**	01090	+47	**2 32**	0 07189	+4	**3 32**	0 05733	−63	**4 32**	0 00171	−19
34	1768	58	**34**	1186	49	**34**	727	40	**34**	5607	64	**34**	136	16
36	1654	56	**36**	1 86	51	**36**	7347	38	**36**	5478	65	**36**	107	14
38	1543	55	**38**	1390	53	**38**	7420	36	**38**	5348	66	**38**	81	11
40	1435	53	**40**	1496	54	**40**	7489	33	**40**	5 16	66	**40**	62	9
0 42	01331	−52	**1 42**	01606	+56	**2 42**	0 7553	+31	**3 42**	0 05083	−67	**4 42**	0 00 47	−6
44	1 9	50	**44**	1719	57	**44**	7613	9	**44**	4948	68	**44**	37	4
46	1131	48	**46**	1836	58	**46**	7668	7	**46**	481	68	**46**	31	2
48	1 37	46	**48**	195	59	**48**	7719	5	**48**	4675	69	**48**	31	+1
50	946	45	**50**	2 73	61	**50**	7766	2	**50**	4537	69	**50**	36	4
0 52	0 00858	−43	**1 52**	0 02196	+6	**2 52**	0 078 7	+20	**3 52**	04399	−69	**4 52**	0 00045	+6
54	775	41	**54**	2321	63	**54**	7845	18	**54**	4260	70	**54**	60	8
56	696	39	**56**	2449	64	**56**	7877	15	**56**	41 1	70	**56**	78	11
58	6 1	37	**58**	578	65	**58**	7904	13	**58**	3981	70	**58**	10	13
60	550	35	**60**	7 9	66	**60**	79 7	10	**60**	384	70	**60**	131	16
0 62	0 00483	−33	**1 62**	841	+67	**2 62**	0 07945	+8	**3 62**	0 03703	−70	**4 62**	0 00164	+18
64	42	3	**64**	2975	68	**64**	7958	5	**64**	3564	70	**64**	203	21
66	363	28	**66**	3111	68	**66**	7966	+3	**66**	3425	69	**66**	246	23
68	3 9	6	**68**	3247	69	**68**	7969	0	**68**	3288	69	**68**	293	25
70	60	23	**70**	3385	69	**70**	7967	−2	**70**	3151	68	**70**	346	27
0 72	0 00216	−1	**1 72**	0 035 3	+69	**2 72**	0 7961	−5	**3 72**	0 03 15	−68	**4 72**	0 00403	+29
74	176	19	**74**	3661	7	**74**	7949	7	**74**	2881	67	**74**	463	32
76	141	16	**76**	38 0	70	**76**	7933	9	**76**	2748	66	**76**	529	34
78	111	14	**78**	394	7	**78**	7912	1	**78**	2616	65	**78**	598	36
80	85	1	**80**	4079	7	**80**	7885	14	**80**	2487	64	**80**	673	38
0 82	00065	−9	**1 82**	0 04 18	+70	**2 82**	0 07855	−17	**3 82**	0 359	−64	**4 82**	0 00750	+4
84	49	7	**84**	4357	7	**84**	7819	19	**84**	2233	63	**84**	833	42
86	38	4	**86**	4496	69	**86**	7779	22	**86**	109	61	**86**	919	44
88	3	−	**88**	4634	69	**88**	7734	4	**88**	1988	60	**88**	1 9	46
90	31	+1	**90**	4771	69	**90**	7684	26	**90**	1869	58	**90**	1103	48
0 92	0 00035	+3	**1 92**	0 04908	+68	**2 92**	7630	−8	**3 92**	0 01753	−58	**4 92**	0 01199	+49
94	44	6	**94**	5 43	67	**94**	7571	31	**94**	1639	56	**94**	130	51
96	58	8	**96**	5177	67	**96**	7508	33	**96**	15 8	54	**96**	14 4	53
98	76	1	**98**	5309	66	**98**	7441	35	**98**	1421	53	**98**	1510	54
1 00	0 00099	+13	**2 00**	0 0544	+65	**3 00**	0 07369	−37	**4 00**	0 1317	−51	**5 00**	016 1	+56

Tables of Longitude, Latitude, and Radius Vector

Equations of Longitude

XXIX *continued* — Argument O

1 O	2 Equation	3 Δ 0d·01	1 O	2 Equation	3 Δ 0d·01	1 O	2 Equation	3 Δ 0d·01
d	°		d	°		d	°	
5·00	0·01621	+ 56	6·00	0·07561	+ 31	7·00	0·05065	− 67
·02	1734	57	·02	7620	29	·02	4930	68
·04	1850	59	·04	7675	26	·04	4793	69
·06	1968	60	·06	7725	24	·06	4656	69
·08	2089	61	·08	7772	22	·08	4518	69
·10	2213	62	·10	7812	19	·10	4380	69
5·12	0·02338	+ 63	6·12	0·07849	+ 17	7·12	0·04241	− 70
·14	2466	65	·14	7881	15	·14	4102	70
·16	2596	65	·16	7907	12	·16	3962	70
·18	2727	66	·18	7929	10	·18	3823	70
·20	2859	67	·20	7947	8	·20	3684	70
5·22	0·02993	+ 68	6·22	0·07959	+ 5	7·22	0·03545	− 70
·24	3129	68	·24	7966	+ 3	·24	3406	69
·26	3265	69	·26	7969	0	·26	3269	68
·28	3403	69	·28	7966	− 3	·28	3133	68
·30	3542	69	·30	7959	5	·30	2997	68
5·32	0·03680	+ 69	6·32	0·07947	− 7	7·32	0·02863	− 67
·34	3819	70	·34	7930	10	·34	2730	66
·36	3959	70	·36	7908	12	·36	2598	65
·38	4098	70	·38	7881	15	·38	2469	64
·40	4237	70	·40	7850	17	·40	2342	63
5·42	0·04376	+ 70	6·42	0·07814	− 19	7·42	0·02216	− 62
·44	4515	69	·44	7773	22	·44	2093	61
·46	4653	69	·46	7727	24	·46	1972	60
·48	4790	69	·48	7677	26	·48	1853	59
·50	4927	68	·50	7622	29	·50	1737	57
5·52	0·05061	+ 67	6·52	0·07562	− 31	7·52	0·01624	− 56
·54	5195	67	·54	7499	33	·54	1513	55
·56	5327	66	·56	7431	35	·56	1406	53
·58	5458	65	·58	7359	37	·58	1303	51
·60	5586	64	·60	7283	39	·60	1203	50
5·62	0·05713	+ 63	6·62	0·07203	− 41	7·62	0·01105	− 48
·64	5838	62	·64	7118	43	·64	1013	46
·66	5960	61	·66	7030	45	·66	923	44
·68	6080	60	·68	6938	47	·68	836	43
·70	6198	58	·70	6843	49	·70	753	40
5·72	0·06312	+ 57	6·72	0·06743	− 51	7·72	0·00675	− 38
·74	6424	55	·74	6641	52	·74	601	36
·76	6533	54	·76	6535	54	·76	531	34
·78	6639	52	·78	6427	55	·78	465	32
·80	6741	50	·80	6314	57	·80	403	29
5·82	0·06840	+ 49	6·82	0·06200	− 58	7·82	0·00348	− 26
·84	6936	47	·84	6083	59	·84	295	25
·86	7028	45	·86	5963	61	·86	247	23
·88	7116	43	·88	5840	62	·88	205	20
·90	7200	41	·90	5716	63	·90	166	18
5·92	0·07280	+ 39	6·92	0·05589	− 64	7·92	0·00132	− 16
·94	7357	37	·94	5460	65	·94	103	14
·96	7429	35	·96	5330	66	·96	78	11
·98	7498	33	·98	5198	66	·98	60	8
6·00	0·07561	+ 31	7·00	0·05065	− 67	8·00	0·00046	− 6

Applied Constant: +0°·04000.

XXX

1 P	2 Equation	3 Δ 0d·01
d	°	
0·00	0·00050	+ 0,8
·08	56	0,8
·16	62	0,8
·24	68	0,7
·32	73	0,6
·40	78	0,6
0·48	0·00083	+ 0,6
·56	87	0,4
·64	90	0,3
·72	92	0,2
·80	93	+ 0,1
0·88	0·00094	0,0
·96	94	− 0,1
1·04	93	0,2
·12	91	0,3
·20	88	0,4
1·28	0·00084	− 0,5
·36	80	0,6
·44	75	0,6
·52	70	0,7
·60	64	0,8
1·68	0·00058	− 0,8
·76	52	0,8
·84	46	0,8
·92	40	0,8
2·00	34	0,8
2·08	0·00028	− 0,7
·16	23	0,6
·24	19	0,5
·32	15	0,5
·40	11	0,4
2·48	0·00009	− 0,3
·56	7	0,2
·64	6	− 0,1
·72	6	+ 0,1
·80	7	0,2
2·88	0·00009	+ 0,3
·96	11	0,3
3·04	14	0,4
·12	18	0,6
·20	23	0,6
3·28	0·00028	+ 0,7
·36	34	0,8
·44	40	0,8
·52	46	0,8
·60	52	0,8
3·68	0·00058	+ 0,8
·76	64	0,8
·84	70	0,7
·92	75	0,6
4·00	0·00080	+ 0,6

Constant: +0°·00050.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

Equations of Longitude

XXXI

		3			3
Q	Equation	Δ $0^{d}\,0$	Q	Equation	Δ $0^{d}\,01$
d 0 00	0 0 600	− 8 1	2 00	0 00771	+ 7 6
04	567	8 1	04	801	7 4
08	535	8 1	08	830	7 1
12	502	8 1	12	858	6 9
16	470	7 9	16	885	6 6
20	439	7 6	20	911	6 2
0 24	0 00409	− 7 5	2 24	0 00935	+ 5 8
28	379	7 4	28	957	5 4
32	350	7 0	32	978	4 9
36	3 3	6 6	36	996	4 4
40	97	6 3	40	1 13	3 9
0 44	0 00273	− 5 9	2 44	0 01027	+ 3 4
48	50	5 5	48	1040	2 9
52	9	5 0	52	1050	3
56	1	4 6	56	1058	1 8
60	192	4 1	60	1064	1 3
0 64	0 00177	− 3 5	2 64	0 01068	+ 0 6
68	164	3 0	68	1069	0 0
72	153	2 5	72	1 68	− 0 6
76	144	1 9	76	1064	1 1
80	138	1 3	80	1059	1 5
0 84	0 134	− 8	2 84	0 01052	− 2 1
88	132	− 0 3	88	104	2 9
92	13	+ 0 4	92	1029	3 4
96	135	0 9	96	1015	3 8
1 00	139	1 4	3 00	999	4 3
1 04	0 00146	+ 1	3 04	0 00980	− 4 9
08	156	8	08	960	5 3
12	168	3 3	12	938	5 8
16	182	3 8	16	914	6 3
20	198	4 1	20	888	6 5
1 24	0 00215	+ 4 6	3 24	0 00862	− 6 8
28	35	5	28	834	7 1
32	57	5 6	32	8 5	7 4
36	280	6 0	36	775	7 6
40	305	6 4	40	744	7 8
1 44	0 0 331	+ 6 6	3 44	0 00713	− 7 9
48	358	7	48	681	8 1
52	387	7 4	52	648	8 2
56	417	7 6	56	615	8 2
60	448	7 9	60	58	8 2
1 64	0 0 480	+ 8 0	3 64	0 0 549	− 8 1
68	51	8 0	68	517	8 0
72	544	8 1	72	485	8 1
76	577	8 2	76	45	7 9
80	610	8	80	4 1	7 6
1 84	0 00643	+ 8 1	3 84	0 00391	− 7 4
88	675	8 1	88	36	7 1
92	7 8	8 1	92	334	6 8
96	740	7 9	96	308	6 3
2 00	0 00771	+ 7 6	4 00	0 84	− 5 7

Appli d C t t + 00600

XXXII

		3
R	Equation	Δ $0^{d}\,01$
0 00	0 00100	− 1 6
08	87	1 6
16	74	1 6
24	61	1 6
32	49	1 4
40	39	1 3
0 48	0 00029	− 1 1
56	1	0 9
64	14	0 8
72	9	0 5
80	6	− 0 3
0 88	0 00005	0 0
96	6	+ 0 2
1 04	8	0 4
12	12	0 6
20	18	0 9
1 28	0 00026	+ 1 1
36	35	1 2
44	45	1 4
52	57	1 5
60	69	1 6
1 68	0 00082	+ 1 6
76	95	1 7
84	109	1 7
92	1 2	1 6
2 00	134	1 5
2 08	0 00146	+ 1 5
16	158	1 4
24	168	1 1
32	176	1 0
40	184	0 9
2 48	0 00189	+ 0 6
56	193	0 4
64	195	+ 0 1
72	195	− 0 1
80	193	0 4
2 88	0 00189	− 0 6
96	184	0 8
3 04	177	1 0
12	168	1 1
20	159	1 3
3 28	0 00147	− 1 5
36	135	1 5
44	1 3	1 6
52	110	1 7
60	96	1 7
3 68	0 00083	− 1 6
76	70	1 6
84	58	1 5
92	46	1 4
4 00	0 00036	− 1 2

C t t + 00 00

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

Equations of the Variation of the Radius Vector, Doubled.

XXXIII

1 A	2 Equation	3 Δ $0^{d}\cdot1$
d		
0·0	−·00373	−0,2
·2	375	1,8
·4	380	3,5
·6	389	5,5
·8	402	7,3
1·0	418	8,8
1·2	−·00437	−10,3
·4	459	11,5
·6	483	12,3
·8	508	12,0
2·0	531	11,3
2·2	−·00553	−10,5
·4	573	9,0
·6	589	7,3
·8	602	5,5
3·0	611	3,8
3·2	−·00617	− 2,3
·4	620	− 1,0
·6	621	+ 0,5
·8	618	2,0
4·0	613	3,5
4·2	−·00604	+ 5,3
·4	592	6,8
·6	577	8,5
·8	558	10,0
5·0	537	11,0
5·2	−·00514	+12,0
·4	489	12,3
·6	465	11,5
·8	443	10,5
6·0	423	9,3
6·2	−·00406	+ 7,5
·4	393	6,0
·6	382	4,3
·8	376	2,3
7·0	373	+ 0,5
7·2	−·00374	− 1,5
·4	379	3,0
·6	386	4,8
·8	398	7,0
8·0	414	8,8
8·2	−·00433	−10,0
·4	454	11,0
·6	477	11,8
·8	501	12,0
9·0	525	11,8
9·2	−·00548	−10,8
·4	568	9,3
·6	585	7,5
·8	598	6,0
10·0	−·00609	− 4,5

Constant: −0·00500.

XXXIV

1 B	2 Equation	3 Δ $0^{d}\cdot1$
d		
0·0	+·00015	0,0
0·4	17	+1,1
0·8	24	2,3
1·2	35	2,8
1·6	46	2,8
2·0	57	2,3
2·4	+·00064	+1,4
2·8	68	+0,5
3·2	68	−0,8
3·6	63	1,8
4·0	54	2,4
4·4	+·00044	−2,8
4·8	32	2,8
5·2	22	2,3
5·6	14	1,5
6·0	10	−0,6
6·4	+·00009	+0,4
6·8	13	1,3
7·2	19	2,0
7·6	29	2,6
8·0	40	2,8
8·4	+·00051	+2,5
8·8	60	1,9
9·2	66	+1,3
9·6	69	0,0
10·0	66	−1,3
10·4	+·00059	−1,9
10·8	49	2,6
11·2	38	2,8
11·6	27	2,4
12·0	19	1,5
12·4	+·00015	−0,4
12·8	16	+0,9
13·2	22	1,9
13·6	31	2,5
14·0	42	2,8
14·4	+·00053	+2,5
14·8	62	1,9
15·2	68	+0,8
15·6	68	−0,5
16·0	64	1,3
16·4	+·00057	−1,9
16·8	47	2,8
17·2	35	2,8
17·6	25	2,4
18·0	16	1,8
18·4	+·00011	−0,9
18·8	9	0,0
19·2	11	+1,0
19·6	17	2,0
20·0	+·00027	+3,0

Constant: +0·00040.

XXXV

1 D	2 Equation	3 Δ	1 D	2 Equation	3 Δ
d			d		
0·0	+·00017	0	5·0	+·00416	−25
·1	18	+ 2	·1	390	26
·2	22	4	·2	364	26
·3	27	6	·3	338	27
·4	35	9	·4	311	27
·5	46	11	·5	285	27
0·6	+·00058	+13	5·6	+·00258	−27
·7	72	15	·7	232	26
·8	89	17	8	207	25
·9	107	18	·9	183	24
1·0	126	20	6·0	160	23
1·1	+·00148	+22	6·1	+·00138	−21
·2	170	23	·2	118	20
·3	194	24	·3	99	19
·4	218	25	·4	81	17
·5	244	26	·5	66	15
1·6	+·00270	+26	6·6	+·00052	−13
·7	296	27	·7	41	10
·8	323	27	·8	32	8
·9	349	27	·9	25	6
2·0	376	27	7·0	20	4
2·1	+·00402	+26	7·1	+·00017	− 2
·2	427	25	·2	17	+ 1
·3	452	24	·3	19	4
·4	475	23	·4	24	6
·5	497	22	·5	31	8
2·6	+·00518	+20	7·6	+·00040	+10
·7	537	19	·7	51	12
·8	555	17	·8	64	14
·9	571	15	·9	79	16
3·0	585	13	8·0	97	18
3·1	+·00597	+11	8·1	+·00116	+19
·2	606	9	·2	136	21
·3	614	7	·3	158	23
·4	619	4	·4	181	24
·5	622	+ 2	·5	205	25
3·6	+·00623	− 1	8·6	+·00230	+26
·7	621	3	·7	256	26
·8	617	5	·8	282	26
·9	611	7	·9	308	27
4·0	602	9	9·0	335	27
4·1	+·00592	−11	9·1	+·00361	+27
·2	579	14	·2	388	26
·3	564	16	·3	413	25
·4	547	18	·4	438	24
·5	529	19	·5	462	23
4·6	+·00509	−21	9·6	+·00485	+22
·7	488	22	·7	507	21
·8	465	23	·8	527	19
·9	441	24	·9	545	18
5·0	+·00416	−25	10·0	+·00562	+16

Applied Constant; +0·00320.

XXXVI

1 E	2 Equation	3 Δ $0^{d}\cdot1$
d		
0·0	+·00011	0,0
·2	13	+ 2,0
·4	19	4,0
·6	29	5,8
·8	42	7,3
1·0	58	8,5
1·2	+·00076	+ 9,8
·4	97	10,8
·6	119	11,0
·8	141	11,3
2·0	164	11,3
2·2	+·00186	+10,5
·4	206	9,5
·6	224	8,5
·8	240	7,3
3·0	253	5,5
3·2	+·00262	+ 3,5
·4	267	+ 1,8
·6	269	0,0
·8	267	− 2,3
4·0	260	4,3
4·2	+·00250	− 5,8
·4	237	7,5
·6	220	9,0
·8	201	9,8
5·0	181	10,5
5·2	+·00159	−11,3
·4	136	11,3
·6	114	11,0
·8	92	10,5
6·0	72	9,5
6·2	+·00054	− 8,5
·4	38	7,0
·6	26	5,3
·8	17	3,5
7·0	12	− 1,5
7·2	+·00011	+ 0,5
·4	14	2,5
·6	21	4,3
·8	31	6,0
8·0	45	7,8
8·2	+·00062	+ 9,0
·4	81	10,0
·6	102	10,8
·8	124	11,0
9·0	146	11,3
9·2	+·00169	+11,0
·4	190	10,3
·6	210	9,5
·8	228	8,3
10·0	+·00243	+ 6,8

Constant: +0·00140.

The sum of the Equations of Tables XXXIII–XXXVI gives the Variation.

Tables of Longitude, Latitude, and Radius Vector

XXXVII Equation of Latitude **Argument O**

		3	4			3	4			3	4			3	4
O	Equation	Δ	$\frac{1}{2}\Delta^2$	**O**	Equation	Δ	$\frac{1}{2}\Delta^2$	**O**	Equation	Δ	$\frac{1}{2}\Delta^2$	**O**	Equation	Δ	$\frac{1}{2}\Delta^2$
0 00	9000	+740		**1 00**	1 54888	+474	– 3	d **2 00**	1 72909	– 137	– 3	**3 00**	1 3 918	– 648	– 2
02	91479	74	0	**02**	1 558 6	464	3	**02**	1 7 62	150	3	**02**	1 9617	654	2
04	9 959	739	0	**04**	1 56743	453	3	**04**	1 7 311	162	3	**04**	1 8304	660	
06	94437	739		**06**	1 57639	443	3	**06**	1 71973	175	3	**06**	1 6978	666	1
08	95914	738	0	**08**	1 58515	433	3	**08**	1 71610	188	3	**08**	1 564	671	1
10	97388	737	0	**10**	1 59369	4	3	**10**	1 71	1	3	**10**	1 4 94	676	1
0 12	0 98861	+736		**1 12**	1 60 0	+411	– 3	**2 12**	1 70808	– 213	– 3	**3 12**	1 2 937	– 681	– 1
14	1 0 331	734	0	**14**	1 61013	400	3	**14**	1 70369	6	3	**14**	1 21569	686	1
16	1 01798	733	0	**16**	1 61803	389	3	**16**	1 69905	38	3	**16**	1 0192	691	1
18	1 3 6	731	– 1	**18**	1 6 57	378	3	**18**	1 69417	250	3	**18**	1 18806	696	1
20	1 047 1	7 8	1	**20**	1 63315	367	3	**20**	1 68905	263	3	**20**	1 17410	700	1
0 22	1 06176	+7 6	– 1	**1 22**	1 64038	+356	– 3	**2 22**	1 68368	– 275	– 3	**3 22**	1 16005	– 704	– 1
24	1 76 6	7 4	1	**24**	1 64737	344	3	**24**	1 67806	287	3	**24**	1 14593	708	1
26	1 9 69	7 1	1	**26**	1 65414	333	3	**26**	1 67 1	99	3	**26**	1 13174	711	1
28	1 105 8	718	1	**28**	1 66067	3 1	3	**28**	1 66611	311	3	**28**	1 11748	715	1
30	1 11941	715	1	**30**	1 66697	309	3	**30**	1 65979	3	3	**30**	1 10315	718	1
0 32	1 13367	+711	– 1	**1 32**	1 6730	+297	– 3	**2 32**	1 653 2	– 334	– 3	**3 32**	1 08876	– 721	– 1
34	1 14786	708	1	**34**	1 67884	85	3	**34**	1 64643	346	3	**34**	1 07431	724	1
36	1 16197	704	1	**36**	1 68441	73	3	**36**	1 6394	357	3	**36**	1 05980	7 7	1
38	1 17600	700	1	**38**	1 68975	261	3	**38**	1 63 15	368	3	**38**	1 045 4	7 9	1
40	1 18995	695	1	**40**	1 69484	49	3	**40**	1 6 467	380	3	**40**	1 03 64	731	1
0 42	1 0380	+690	– 1	**1 42**	1 69969	+ 36	– 3	**2 42**	1 61696	– 391	– 3	**3 42**	1 016 0	– 733	– 1
44	1 1756	686	1	**44**	1 704 9	224	3	**44**	1 609 4	402	3	**44**	1 00133	735	0
46	1 231	681	1	**46**	1 70863	211	3	**46**	1 60089	413	3	**46**	0 98662	736	0
48	1 4479	676	1	**48**	1 71 73	199	3	**48**	1 59 53	4 3	3	**48**	97189	737	0
50	1 58 5	670		**50**	1 71659	187	3	**50**	1 58396	434	3	**50**	95713	738	0
0 52	1 7160	+664	– 1	**1 52**	1 7 019	+174	– 3	**2 52**	1 57518	– 445	– 3	**3 52**	0 94 37	– 739	0
54	1 2848	659	1	**54**	1 7 354	161	3	**54**	1 56618	455	3	**54**	9 757	740	
56	1 29794	653		**56**	1 7 663	148	3	**56**	1 55699	465	3	**56**	91 78	740	0
58	1 31094	646	2	**58**	1 72947	135	3	**58**	1 54758	475	3	**58**	89799	740	0
60	1 3 381	640	2	**60**	1 73 4	1	3	**60**	1 53799	485	3	**60**	88319	740	0
0 62	1 33655	+634	– 2	**1 62**	1 73436	+110	– 3	**2 62**	1 5282	– 495	– 2	**3 62**	0 86841	– 739	0
64	1 34915	6 7	2	**64**	1 73643	97	3	**64**	1 51821	504	2	**64**	85362	739	0
66	1 36161	620		**66**	1 73824	84	3	**66**	1 50804	513	2	**66**	83886	738	0
68	1 37394	613		**68**	1 73978	7	3	**68**	1 49768	5 3	2	**68**	8 411	737	0
70	1 38611	605		**70**	1 741 8	58	3	**70**	1 48713	53	2	**70**	80939	736	0
0 72	1 39814	+598	–	**1 72**	1 74210	+ 45	– 3	**2 72**	1 4,640	– 541	– 2	**3 72**	0 79469	– 735	0
74	1 410 1	590		**74**	1 74 86	32	3	**74**	1 46549	55		**74**	78001	733	+ 1
76	1 4 173	58		**76**	1 74336	19	3	**76**	1 45441	558	2	**76**	76538	730	1
78	1 433 8	574	2	**78**	1 74360	+ 6	3	**78**	1 44316	567	2	**78**	75 80	728	1
80	1 44468	566	2	**80**	1 74358	– 8	3	**80**	1 43174	575	2	**80**	73626	726	1
0 82	1 45591	+558	–	**1 82**	1 74330	– 20	– 3	**2 82**	1 42016	– 583	– 2	**3 82**	07 178	– 7 3	+ 1
84	1 46698	549		**84**	1 74 77	33	3	**84**	1 4084	591	2	**84**	70734	721	1
86	1 47786	540	2	**86**	1 74197	47	3	**86**	1 3965	599	2	**86**	69296	718	1
88	1 48856	531		**88**	1 74 90	6	3	**88**	1 38448	606	2	**88**	67864	714	1
90	1 49908	52		**90**	1 73958	73	3	**90**	1 37227	614	2	**90**	66439	711	1
0 92	1 5094	+51	– 2	**1 92**	1 73799	– 86	– 3	**2 92**	1 35993	– 6 1	– 2	**3 92**	0 65022	– 7 7	+ 1
94	1 51957	503		**94**	1 73616	98	3	**94**	1 34745	6 8	2	**94**	63612	703	1
96	1 5 953	493		**96**	1 734 6	111	3	**96**	1 33483	635	2	**96**	6 11	699	1
98	1 5393	484		**98**	1 73171	1 4	3	**98**	1 32207	641	2	**98**	60818	695	1
1 00	1 54888	+474	– 3	**2 00**	1 7 9 9	– 137	– 3	**3 00**	1 30918	– 648	– 2	**4 00**	0 59433	– 690	+ 1

Appl d C t t + 000 F E l p d th g m t f T bl XLV th Eq ti f thi T bl t b ppl m ted by th f T bl XXXVIII XLII F th th ph m T bl XLIII XLIV m t l l ppli d

4

XXXVII *continued* — **Equation of Latitude** — **Argument O**

1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
O	Equation	Δ 0d·01	½ Δ²	O	Equation	Δ 0d·01	½ Δ²	O	Equation	Δ 0d·01	½ Δ²	O	Equation	Δ 0d·01	½ Δ²
d				d				d				d			
4·00	0·59433	−690	+1	5·00	0·09967	−235	+3	6·00	0·18410	+392	+3	7·00	0·78599	+733	0
·02	·58058	685	1	·02	9510	222	3	·02	·19206	403	3	·02	·80067	735	0
·04	·56692	680	1	·04	9078	210	3	·04	·20023	414	3	·04	·81538	736	0
·06	·55338	675	1	·06	8671	197	3	·06	·20862	425	3	·06	·83012	737	0
·08	·53993	670	1	·08	8289	185	3	·08	·21722	436	3	·08	·84487	738	0
·10	·52660	664	2	·10	7933	172	3	·10	·22604	446	3	·10	·85965	739	0
4·12	0·51338	−658	+2	5·12	0·07602	−159	+3	6·12	0·23505	+456	+3	7·12	0·87443	+740	0
·14	·50028	652	2	·14	7296	147	3	·14	·24427	466	3	·14	·88924	740	0
·16	·48730	646	2	·16	7016	134	3	·16	·25369	476	3	·16	·90403	740	0
·18	·47445	639	2	·18	6761	121	3	·18	·26332	486	3	·18	·91882	740	0
·20	·46173	633	2	·20	6533	108	3	·20	·27314	496	2	·20	·93361	739	0
4·22	0·44915	−626	+2	5·22	0·06330	−95	+3	6·22	0·28315	+505	+2	7·22	0·94838	+739	0
·24	·43670	619	2	·24	6155	82	3	·24	·29335	515	2	·24	·96315	738	0
·26	·42440	612	2	·26	6004	69	3	·26	·30374	524	2	·26	·97789	737	0
·28	·41224	604	2	·28	5879	56	3	·28	·31431	533	2	·28	·99262	736	0
·30	·40024	597	2	·30	5779	43	3	·30	·32506	542	2	·30	1·00732	734	−1
4·32	0·38838	−589	+2	5·32	0·05706	−30	+3	6·32	0·33599	+551	+2	7·32	1·02198	+732	−1
·34	·37669	581	2	·34	5659	17	3	·34	·34709	560	2	·34	1·03660	730	1
·36	·36513	573	2	·36	5638	−4	3	·36	·35837	568	2	·36	1·05118	728	1
·38	·35377	564	2	·38	5643	+9	3	·38	·36981	576	2	·38	1·06572	726	1
·40	·34256	557	2	·40	5674	22	3	·40	·38142	585	2	·40	1·08020	723	1
4·42	0·33152	−548	+2	5·42	0·05731	+36	+3	6·42	0·39319	+592	+2	7·42	1·09462	+720	−1
·44	·32066	539	2	·44	5816	49	3	·44	·40510	600	2	·44	1·10899	717	1
·46	·30998	530	2	·46	5925	61	3	·46	·41718	608	2	·46	1·12330	714	1
·48	·29948	520	2	·48	6060	74	3	·48	·42940	615	2	·48	1·13755	710	1
·50	·28917	511	2	·50	6221	87	3	·50	·44177	622	2	·50	1·15171	706	1
4·52	0·27905	−501	+2	5·52	0·06409	+100	+3	6·52	0·45427	+629	+2	7·52	1·16580	+703	−1
·54	·26912	492	2	·54	6623	113	3	·54	·46691	635	2	·54	1·17981	699	1
·56	·25937	482	3	·56	6862	126	3	·56	·47968	642	2	·56	1·19374	694	1
·58	·24983	472	3	·58	7126	139	3	·58	·49258	648	2	·58	1·20757	689	1
·60	·24049	462	3	·60	7417	152	3	·60	·50561	655	2	·60	1·22130	684	1
4·62	0·23135	−451	+3	5·62	0·07733	+165	+3	6·62	0·51876	+660	+1	7·62	1·23493	+679	−1
·64	·22241	442	3	·64	8075	177	3	·64	·53202	666	2	·64	1·24847	674	1
·66	·21369	431	3	·66	8442	190	3	·66	·54540	672	1	·66	1·26189	669	1
·68	·20517	421	3	·68	8834	202	3	·68	·55889	677	1	·68	1·27521	663	2
·70	·19687	410	3	·70	9251	215	3	·70	·57248	682	1	·70	1·28841	657	2
4·72	0·18878	−399	+3	5·72	0·09694	+228	+3	6·72	0·58617	+687	+1	7·72	1·30149	+651	−2
·74	·18092	388	3	·74	·10161	240	3	·74	·59996	692	1	·74	1·31445	645	2
·76	·17328	376	3	·76	·10652	252	3	·76	·61384	696	1	·76	1·32728	638	2
·78	·16587	365	3	·78	·11167	264	3	·78	·62781	701	1	·78	1·33998	632	2
·80	·15867	354	3	·80	·11708	276	3	·80	·64186	705	1	·80	1·35255	625	2
4·82	0·15170	−343	+3	5·82	0·12272	+288	+3	6·82	0·65599	+708	+1	7·82	1·36498	+618	−2
·84	·14497	331	3	·84	·12861	300	3	·84	·67019	712	1	·84	1·37726	611	2
·86	·13847	319	3	·86	·13473	312	3	·86	·68447	716	1	·86	1·38940	603	2
·88	·13221	307	3	·88	·14110	324	3	·88	·69881	719	1	·88	1·40138	596	2
·90	·12618	295	3	·90	·14769	335	3	·90	·71321	721	1	·90	1·41322	588	2
4·92	0·12040	−283	+3	5·92	0·15451	+346	+3	6·92	0·72766	+724	+1	7·92	1·42489	+580	−2
·94	·11485	271	3	·94	·16156	358	3	·94	·74218	727	1	·94	1·43641	572	2
·96	·10955	259	3	·96	·16885	370	3	·96	·75674	729	+1	·96	1·44775	563	2
·98	·10448	247	3	·98	·17637	381	3	·98	·77135	731	0	·98	1·45893	555	2
5·00	0·09967	−235	+3	6·00	0·18410	+392	+3	7·00	0·78599	+733	0	8·00	1·46994	+546	−2

Applied Constant: +0·90000.

For Eclipses, and as the argument of Table XLV, the Equation of this Table must be supplemented by those of Tables XXXVIII–XLII. For the other phenomena Tables XLIII, XLIV must also be applied.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XXXVIII Equation of Latitude Argument S

		3	4			3	4			3	4			3	4
S	Equ t on	Δ 0 0	$\frac{1}{2}\Delta^2$	**S**	Equat on	Δ 0 0	$\frac{1}{2}\Delta^2$	**S**	Equation	Δ 0d 01	$\frac{1}{2}\Delta^2$	**S**	Equation	Δ 0d 01	$\frac{1}{2}\Delta^2$
d												d			
0 00	0 08 00	+43 8	0	**2 00**	0 1 897	− 8 1	− 2	**4 00**	0 06190	−40 8	+ 1	**6 00**	0 03773	+23 3	+ 2
04	8175	43 8	0	**04**	1286	9 6		**04**	60 8	40	1	**04**	3868	24 4	
08	8350	43 8		**08**	1 8 0	11 1		**08**	5868	39 6	1	**08**	3968	25 6	
12	85 5	43 5	0	**12**	12773	1 5		**12**	5711	38 9	1	**12**	4073	6 9	1
16	8698	43 3	0	**16**	1 7	14 1	2	**16**	5557	38 1	1	**16**	4183	8 0	2
20	8871	43 0		**20**	1 66	15 5		**20**	5406	37 4	1	**20**	4297	29 3	1
0 24	0 0904	+4 8	0	**2 24**	12596	−16 8	−	**4 24**	0 05 58	−36 5	+ 1	**6 24**	0 04417	+3 4	+ 1
28	9 13	4 5	− 1	**28**	12526	18 3		**28**	5114	35 6	1	**28**	4540	31 5	1
32	938	42 1	1	**32**	1 45	19 8	2	**32**	4973	34 8	1	**32**	4669	32 6	1
36	9550	41 6	1	**36**	12368	21 0	2	**36**	4836	33 9	1	**36**	4801	33 5	1
40	9715	41 0	1	**40**	1 28	2 3		**40**	4702	3 8	1	**40**	4937	34 4	1
0 44	0 09878	+40 5	− 1	**2 44**	0 12190	− 3 6	− 2	**4 44**	0 04574	−31 6	+ 1	**6 44**	0 05 76	+35 5	+ 1
48	1 039	40 0	1	**48**	1 093	5 1		**48**	4449	30 8		**48**	5 1	36 5	1
52	10198	39 3	1	**52**	11989	6 5		**52**	4328	29 6		**52**	5368	37 1	1
56	1 353	38 5	1	**56**	11881	27 5		**56**	4 12	28 4	1	**56**	5518	37 8	1
60	105 6	37 9	1	**60**	11769	28 5	1	**60**	4101	27 3		**60**	5670	38 6	1
0 64	0 10656	+37 0	− 1	**2 64**	0 11653	−29 8	− 2	**4 64**	0 03994	−26 1	+ 2	**6 64**	0 05827	+39 4	+ 1
68	10802	36 1	1	**68**	11531	30 9	1	**68**	3892	24 8		**68**	5985	40 0	1
72	10945	35 3	1	**72**	11406	31 9	1	**72**	3796	23 5	2	**72**	6147	40 6	1
76	11084	34 4	1	**76**	11276	33 0	1	**76**	3704	22 1	2	**76**	6310	41 1	1
80	1122	33 5	1	**80**	1114	33 9	1	**80**	3619	20 8	2	**80**	6476	41 8	+ 1
0 84	0 1135	+3 4	− 1	**2 84**	0 11005	−35 0	− 1	**4 84**	0 03538	−19 5	+	**6 84**	0 06644	+42 5	0
88	11479	31 3	1	**88**	10862	35 9	1	**88**	3463	18 1		**88**	6815	42 8	0
92	1160	30 3	1	**92**	10718	36 5	1	**92**	3393	16 8	2	**92**	6986	4 8	0
96	11721	9 3	1	**96**	10570	37 4	1	**96**	3329	15 3	2	**96**	7157	43 0	0
1 00	11836	28 0		**3 00**	10419	38 3	1	**5 00**	3 71	13 8	2	**7 00**	7330	43 3	0
1 04	0 11945	+26 6	− 2	**3 04**	0 1 64	−39 0	− 1	**5 04**	0 03 19	−12 3	+	**7 04**	0 07503	+43 5	0
08	12 49	25 5	2	**08**	10107	39 6	1	**08**	3173	10 9	2	**08**	7678	43 8	0
12	1 149	4 3		**12**	9947	40 3	1	**12**	313	9 5	2	**12**	7853	43 8	0
16	1 243	2 9		**16**	9785	40 9	1	**16**	3097	7 9	2	**16**	80 8	43 8	0
20	1233	21 6		**20**	9620	41 5	1	**20**	3069	6 3	2	**20**	8 03	43 8	0
1 24	0 1 416	+ 0 4	−	**3 24**	0 09453	−41 9	− 1	**5 24**	0 03047	− 4 8	+ 2	**7 24**	0 08378	+43 8	0
28	1 495	19 0		**28**	9 85	42 3	1	**28**	3031	3 3	2	**28**	8553	43 5	0
32	1 568	17 5		**32**	9115	42 6	1	**32**	3021	1 6		**32**	8726	43 3	0
36	12635	16		**36**	8944	43 0	− 1	**36**	3018	− 0 1	2	**36**	8899	43 0	0
40	1 696	14 5		**40**	8771	43 3	0	**40**	30 0	+ 1 3	2	**40**	9070	42 8	0
1 44	1 751	+13 1	−	**3 44**	0 08598	−43 4	0	**5 44**	0 030 8	+ 2 8	+ 2	**7 44**	0 09241	+42 5	0
48	1 8 1	11 8		**48**	8424	43 6	0	**48**	304	4 4	2	**48**	9410	4	− 1
52	1 845	10 3	2	**52**	8249	43 8	0	**52**	3 63	6		**52**	9577	41 4	1
56	1 883	8 8		**56**	8074	43 8	0	**56**	3090	7 5	2	**56**	9741	40 9	1
60	1 915	7 3	2	**60**	7899	43 8	0	**60**	3123	8 9	2	**60**	9904	40 4	1
1 64	0 1 941	+ 5 6		**3 64**	0 07724	−43 8	0	**5 64**	0 03161	+10 4	+	**7 64**	0 10064	+39 8	− 1
68	1 960	4 1		**68**	7549	43 6	0	**68**	3206	12 0	2	**68**	10222	39 1	1
72	1 974	2 6		**72**	7375	43 4	0	**72**	3 57	13 4		**72**	10377	38 4	1
76	1 981	+ 1 1	2	**76**	7 0	43 3	0	**76**	3313	14 9		**76**	10529	37 8	1
80	12983	− 0 4	2	**80**	70 9	43 0	+ 1	**80**	3376	16 5	2	**80**	10679	37 0	1
1 84	0 12978	− 0	−	**3 84**	0 06858	−4 6	+ 1	**5 84**	0 03445	+17 8	+ 2	**7 84**	0 10825	+36 0	− 1
88	1 967	3 5		**88**	6688	4 3	1	**88**	3518	19 1	2	**88**	10967	35 3	1
92	1 950	5 0	2	**92**	6520	41 8	1	**92**	3598	20 5		**92**	11107	34 5	1
96	1 9 7	6 6	2	**96**	6354	41 3	1	**96**	368	1 9		**96**	11243	33 3	2
2 00	0 1 897	− 8 1	− 2	**4 00**	0 619	−40 8	+ 1	**6 00**	0 03773	+23 3	+	**8 00**	0 11373	+32 0	− 2

Appli d C t t + 8

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

Equations of Latitude

XXXIX

1	2	3	1	2	3
T	Equation	Δ 0d·01	T	Equation	Δ 0d·01
d			d		
0·00	0·00900	−3,9	4·00	0·01063	+3,7
·08	869	3,9	·08	1092	3,6
·16	837	3,9	·16	1120	3,4
·24	806	3,8	·24	1147	3,3
·32	776	3,8	·32	1172	3,1
·40	746	3,7	·40	1196	2,9
0·48	0·00717	−3,6	4·48	0·01219	+2,8
·56	689	3,4	·56	1240	2,6
·64	662	3,3	·64	1260	2,4
·72	636	3,2	·72	1278	2,1
·80	611	3,0	·80	1294	1,8
0·88	0·00588	−2,8	4·88	0·01307	+1,6
·96	566	2,6	·96	1319	1,4
1·04	546	2,4	5·04	1329	1,1
·12	528	2,2	·12	1337	0,8
·20	511	1,9	·20	1342	0,6
1·28	0·00497	−1,7	5·28	0·01346	+0,3
·36	484	1,4	·36	1347	0,0
·44	474	1,2	·44	1346	−0,3
·52	465	0,9	·52	1343	0,6
·60	459	0,6	·60	1337	0,8
1·68	0·00455	−0,4	5·68	0·01330	−1,1
·76	453	−0,1	·76	1320	1,4
·84	454	+0,2	·84	1308	1,6
·92	456	0,4	·92	1294	1,8
2·00	461	0,7	6·00	1279	2,1
2·08	0·00468	+1,0	6·08	0·01261	−2,3
·16	477	1,3	·16	1242	2,5
·24	488	1,5	·24	1221	2,8
·32	501	1,8	·32	1198	2,9
·40	516	2,0	·40	1174	3,1
2·48	0·00533	+2,3	6·48	0·01148	−3,3
·56	552	2,5	·56	1121	3,4
·64	573	2,7	·64	1094	3,5
·72	595	2,9	·72	1065	3,7
·80	619	3,1	·80	1035	3,8
2·88	0·00644	+3,2	6·88	0·01005	−3,8
·96	670	3,4	·96	974	3,9
3·04	698	3,5	7·04	943	3,9
·12	726	3,6	·12	912	3,9
·20	755	3,7	·20	880	3,9
3·28	0·00785	+3,8	7·28	0·00849	−3,9
·36	816	3,9	·36	818	3,9
·44	847	3,9	·44	787	3,8
·52	878	3,9	·52	757	3,7
·60	910	3,9	·60	728	3,6
3·68	0·00941	+3,9	7·68	0·00699	−3,5
·76	972	3,9	·76	672	3,4
·84	1003	3,8	·84	645	3,3
·92	1033	3,8	·92	620	3,1
4·00	0·01063	+3,7	8·00	0·00596	−2,9

Applied Constant: +0·00900.

XL

1	2	3	1	2	3	1	2	3
U	Equation	Δ 0d·01	U	Equation	Δ 0d·01	U	Equation	Δ 0d·00
d			d			d		
0·00	0·01000	+8,6	2·50	0·01790	−5,0	5·00	0·00076	−2,7
·05	1043	8,5	·55	1764	5,3	·05	63	2,4
·10	1085	8,5	·60	1737	5,6	·10	52	1,9
·15	1128	8,5	·65	1708	5,9	·15	44	1,6
·20	1170	8,4	·70	1678	6,1	·20	36	1,3
·25	1212	8,4	·75	1647	6,4	·25	31	0,8
0·30	0·01254	+8,3	2·80	0·01614	−6,7	5·30	0·00028	−0,5
·35	1295	8,1	·85	1580	6,8	·35	26	−0,2
·40	1335	8,0	·90	1546	7,1	·40	26	+0,3
·45	1375	8,0	·95	1509	7,3	·45	29	0,7
·50	1415	7,8	3·00	1473	7,4	·50	33	1,0
0·55	0·01453	+7,5	3·05	0·01435	−7,7	5·55	0·00039	+1,4
·60	1490	7,3	·10	1396	7,8	·60	47	1,7
·65	1526	7,2	·15	1357	7,9	·65	56	2,1
·70	1562	7,0	·20	1317	8,1	·70	68	2,5
·75	1596	6,7	·25	1276	8,2	·75	81	2,8
0·80	0·01629	+6,5	3·30	0·01235	−8,3	5·80	0·00096	+3,2
·85	1661	6,3	·35	1193	8,4	·85	113	3,6
·90	1692	6,0	·40	1151	8,4	·90	132	3,9
·95	1721	5,8	·45	1109	8,5	·95	152	4,1
1·00	1750	5,5	·50	1066	8,6	6·00	173	4,5
1·05	0·01776	+5,1	3·55	0·01023	−8,6	6·05	0·00197	+4,8
·10	1801	4,8	·60	980	8,6	·10	221	5,1
·15	1824	4,6	·65	937	8,5	·15	248	5,5
·20	1847	4,3	·70	895	8,5	·20	276	5,7
·25	1867	3,9	·75	852	8,4	·25	305	6,0
1·30	0·01886	+3,6	3·80	0·00811	−8,3	6·30	0·00336	+6,3
·35	1903	3,2	·85	769	8,3	·35	368	6,5
·40	1918	2,8	·90	728	8,2	·40	401	6,7
·45	1931	2,4	·95	687	8,1	·45	435	6,9
·50	1942	2,1	4·00	647	8,0	·50	470	7,2
1·55	0·01952	+1,8	4·05	0·00607	−7,9	6·55	0·00507	+7,4
·60	1960	1,5	·10	568	7,7	·60	544	7,6
·65	1967	1,1	·15	530	7,5	·65	583	7,8
·70	1971	0,7	·20	493	7,3	·70	622	7,8
·75	1974	+0,3	·25	457	7,1	·75	661	8,0
1·80	0·01974	−0,1	4·30	0·00422	−6,8	6·80	0·00702	+8,2
·85	1973	0,5	·35	389	6,6	·85	743	8,3
·90	1969	0,8	·40	356	6,4	·90	785	8,4
·95	1964	1,2	·45	325	6,2	·95	827	8,3
2·00	1957	1,6	·50	294	5,9	7·00	868	8,4
2·05	0·01948	−1,9	4·55	0·00266	−5,6	7·05	0·00911	+8,5
·10	1938	2,3	·60	238	5,4	·10	953	8,5
·15	1925	2,7	·65	212	5,1	·15	996	8,6
·20	1911	3,0	·70	187	4,7	·20	1039	8,6
·25	1895	3,3	·75	165	4,3	·25	1082	8,5
2·30	0·01878	−3,7	4·80	0·00144	−4,1	7·30	0·01124	+8,4
·35	1858	4,1	·85	124	3,8	·35	1166	8,5
·40	1837	4,4	·90	106	3,4	·40	1209	8,4
·45	1814	4,7	·95	90	3,0	·45	1250	8,3
2·50	0·01790	−5,0	5·00	0·00076	−2,7	7·50	0·01292	+8,2

Applied Constant: +0·01000.

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

XLI — Equations of Latitude — Argument V

V	Equation	V	Equation	V	Equation	V	Equation
0 0	0 00080	2 0	0 0130	4 0	0 0006	6 0	0 00036
1	85	1	1 9	1	58	1	39
2	89	2	128	2	54	2	41
3	93	3	126	3	51	3	44
4	98	4	124	4	47	4	48
5	1	5	122	5	43	5	52
0 6	0 00106	2 6	0 00119	4 6	0 00 40	6 6	0 00056
7	109	7	116	7	38	7	59
8	113	8	112	8	36	8	63
9	116	9	109	9	33	9	68
1 0	119	3 0	106	5 0	31	7 0	72
1 1	0 00121	3 1	0 001 1	5 1	0 00030	7 1	0 00076
2	1 4	2	97	2	30	2	81
3	126	3	93	3	29	3	86
4	1 8	4	88	4	9	4	90
5	13	5	84	5	29	5	94
1 6	0 00130	3 6	0 00080	5 6	0 00030	7 6	0 00098
7	131	7	75	7	31	7	103
8	131	8	70	8	32	8	107
9	131	9	66	9	34	9	110
2 0	0 00130	4 0	0 0062	6 0	0 00036	8 0	0 00114

Appl d C t t ⊣ 8

XLII — Arguments O, α

α \ O	0^d0	0^d4	0^d8	1^d2	1^d6	2^d0	2^d4	2^l8	3^d2	3^d6	4^d0	4^d4	4^l8	5^l2	5^l6	6^l0	6^l4	6^l8	7^l2	7^l6	8^l0
0	2	20	21	1	1	21	21	1	0	20	20	19	19	19	19	19	19	20	0	20	0
200	5	4	3	3	22	20	19	17	16	15	16	17	17	18	0	21	23	24	25	24	23
400	29	28	27	4	3	19	16	13	1	11	1	14	16	18	1	24	27	28	29	28	27
600	3	31	9	6	3	19	14	11	9	8	9	11	14	18	1	6	9	31	32	31	9
800	35	34	31	7	3	17	13	9	6	5	6	9	13	18	23	7	31	34	35	34	31
1000	36	35	32	28	3	17	12	8	5	4	5	8	12	18	3	28	3	35	36	35	32
1200	36	35	3	28	3	17	12	8	5	4	5	8	12	18	3	28	32	35	36	35	32
1400	34	33	31	27	2	17	13	9	7	6	7	9	13	18	3	27	31	33	34	33	31
1600	3	31	29	26	1	17	14	11	9	8	9	11	14	19	23	26	29	31	32	31	29
1800	8	8	26	4	21	17	16	14	1	1	1	14	16	0	3	4	6	28	28	28	26
2000	4	24	3	21	20	18	17	17	16	16	16	17	19	21	2	23	3	24	24	4	23
2200	19	19	19	19	19	19	19	0	1	21	1		1	21	21	1	20	19	19	19	19
2400	15	15	16	16	18	20	22	4	25	5	5	4	24	22	20	18	16	15	15	15	16
2600	11	11	13	15	17	21	25	27	29	29	9	7	5	22	19	15	13	11	11	11	13
2800	7	8	10	14	17	1	26	30	32	33	3	30	6	23	19	14	10	8	7	8	10
3000	5	6	9	13	17	23	7	31	34	35	34	31	7	2	17	13	9	6	5	6	9
3200	4	5	8	1	17	3	28	32	35	36	35	3	28	2	17	1	8	5	4	5	8
3400	4	5	8	1	17	3	8	3	35	36	35	3	8		17	12	8	5	4	5	8
3600	6	7	10	13	18	3	27	30	33	34	33	30	27	22	17	13	10	7	6	7	10
3800	9	10	1	14	19	23	26	8	30	31	30	8	6	1	17	14	12	10	9	1	12
4000	13	13	14	16	0		24	6	7	7	27	26	24	20	18	16	14	13	13	13	14
4200	17	17	18	19	0	21	3		3	3	3		1	19	18	17	18	17	17	17	18
4400	2	21			1	21		0	19	18	19	18	18	19	19	0	20	21	22	21	21
4600	26	26	5	24		0	18	15	14	14	14	15	16	18	20		25	6	26	6	25
4800	30	9	8	5	3	19	15	12	11	10	11	1	15	18	1	5	8	29	30	29	28
5000	33	3	30	27	23	19	13	10	8		8	10	13	17	1	27	30	3	33	3	30

Aprl d C t t + ooo Th t q l

SATELLITE III

Tables of Longitude, Latitude, and Radius Vector

Equations of Latitude

XLIII

Occultations and Transits

To correct for the Jovicentric Latitude of the Earth, the Satellite's Latitude as derived from Tables XXXVII–XLII, must be supplemented by the term—

$$\pm \cdot 365938\ R_1 \sin(\odot - \Omega)/\Delta \quad \left\{ \begin{array}{l} +\text{Oc.} \\ -\text{Tr.} \end{array} \right.$$
$$(9{\cdot}563408)$$

where R_1, Δ are the Geocentric Distances of the Sun and Jupiter respectively, and Ω the Longitude of the Ascending Node of Jupiter's Orbit on the Ecliptic. For Occultations employ the natural sign, for Transits the reversed sign.

XLIV

Correction of Latitude for Shadows and Transits

1	2	3	4
Lat.	Corr^n. Sh., Tr.	Δ 0·01	Lat.
0·00	− ·00275 +	2,8	2·00
·05	262	2,8	1·95
·10	248	2,8	·90
·15	234	2,8	·85
·20	220	2,8	·80
·25	207	2,8	·75
0·30	− ·00193 +	2,8	1·70
·35	179	2,8	·65
·40	165	2,8	·60
·45	152	2,8	·55
·50	138	2,8	·50
0·55	− ·00124 +	2,8	1·45
·60	110	2,8	·40
·65	97	2,8	·35
·70	83	2,8	·30
·75	69	2,8	·25
0·80	− ·00055 +	2,8	1·20
·85	42	2,8	·15
·90	28	2,8	·10
·95	− 14 +	2,8	·05
1·00	·00000	2,8	1·00

This Correction to be applied to Latitude as found from Tables XXXVII–XLIII, before using as Argument of the Semi-duration for Shadows and Transits.

XLV

Angle above Jupiter's Orbit

1	2	3	4
Lat.	Angle	Δ 0·01	Lat.
	°		
0·00	− 3·5743 +	356,5	2·00
·05	3·3960	356,7	1·95
·10	3·2177	356,7	·90
·15	3·0393	356,9	·85
·20	2·8608	357,0	·80
·25	2·6823	357,1	·75
0·30	− 2·5037 +	357,2	1·70
·35	2·3251	357,3	·65
·40	2·1464	357,4	·60
·45	1·9677	357,5	·55
·50	1·7889	357,6	·50
0·55	− 1·6101 +	357,6	1·45
·60	1·4313	357,6	·40
·65	1·2525	357,7	·35
·70	1·0736	357,8	·30
·75	0·8947	357,9	·25
0·80	− 0·7157 +	357,9	1·20
·85	0·5368	357,8	·15
·90	0·3579	357,9	·10
·95	− 0·1790 +	357,9	·05
1·00	0·0000	358,0	1·00

This Table shows the Angle of the Satellite above Jupiter's Orbit, which corresponds to the Latitude as found for Tables XXXVII–XLII.

SATELLITE III

Tables

of the

Synodic Motion,

Duration of the Phenomena of Eclipse,

Occultation, Transit and Shadow-Transit,

with

Equations for Reduction to the Middle,

Corrections for Jupiter's Phase,

and

Light-Curve of Eclipse

SATELLITE III

Tables of Synodic Motion

XLVI

1	2	1	2	1	2	1	2	1	2
Angle	Syn. Value	Angle	Syn. Value	Angle	Syn. Value	Angle	Syn. Value	Angle	Syn. Value
°	d	°	d	°	d	°	d	°	d
0·000	·000000	**0·020**	·000398	**0·040**	·000796	**0·060**	·001194	**0·080**	·001593
1	20	**21**	418	**41**	816	**61**	1214	**81**	1612
2	40	**22**	438	**42**	836	**62**	1234	**82**	1632
3	60	**23**	458	**43**	856	**63**	1254	**83**	1652
4	80	**24**	478	**44**	876	**64**	1274	**84**	1672
5	100	**25**	498	**45**	896	**65**	1294	**85**	1692
0·006	·000119	**0·026**	·000518	**0·046**	·000916	**0·066**	·001314	**0·086**	·001712
7	139	**27**	537	**47**	936	**67**	1334	**87**	1732
8	159	**28**	557	**48**	956	**68**	1354	**88**	1752
9	179	**29**	577	**49**	975	**69**	1374	**89**	1772
10	199	**30**	597	**50**	995	**70**	1393	**90**	1792
0·011	·000219	**0·031**	·000617	**0·051**	·001015	**0·071**	·001413	**0·091**	·001812
12	239	**32**	637	**52**	1035	**72**	1433	**92**	1831
13	259	**33**	657	**53**	1055	**73**	1453	**93**	1851
14	279	**34**	677	**54**	1075	**74**	1473	**94**	1871
15	299	**35**	697	**55**	1095	**75**	1493	**95**	1891
0·016	·000319	**0·036**	·000717	**0·056**	·001115	**0·076**	·001513	**0·096**	·001911
17	338	**37**	737	**57**	1135	**77**	1533	**97**	1931
18	358	**38**	756	**58**	1155	**78**	1553	**98**	1951
19	378	**39**	776	**59**	1174	**79**	1573	**99**	1971
0·020	·000398	**0·040**	·000796	**0·060**	·001194	**0·080**	·001593	**0·100**	·001991

XLVII

1	2
Angle	Syn. Value
°	d
0·0	·000000
·1	1991
·2	3981
·3	5972
·4	7963
·5	9953
0·6	·011944
·7	13935
·8	15925
·9	17916
1·0	·019907

These Tables show the time taken to describe a given angle with the Mean Synodic Motion. They are to be used for converting into time the Complement or excess of Jupiter's longitude over that of the Satellite at an assumed approximate time of conjunction.

To allow for the *true* Synodic Motion, modify the entry of the table by adding to it its product by the Variation as taken from Tables XXXIII–XXXVI.

SATELLITE III

Tables of the Phenomena

XLVIII Correction of High Latitudes for the Variation

L t \ V	010	009	008	007	006	005	004	003	002	001	000	+ 001	+ 002	+ 003	+ 004	+ 005	+ 006	+ 007	+ 008	+ 009	+ 010
00	+499	+449	+399	+349	+ 99	+ 5	+ 00	+150	+10	+5	0	−50	−1 0	−15	−2 0	−250	−299	−349	−399	−449	−499
02	+469	+42	+375	+3 8	+ 81	+ 34	+188	+141	+ 94	+47	0	−47	− 94	−141	−188	− 34	−281	−328	−375	−422	−469
04	+438	+394	+351	+307	+ 63	+ 19	+175	+131	+ 88	+44	0	−44	− 88	−131	−175	− 19	−263	−3 7	−351	−394	−438
06	+407	+366	+326	+ 85	+ 44	+ 04	+163	+1	+ 81	+41	0	−41	− 81	−1 2	−163	− 04	− 44	−285	−326	−366	407
08	+375	+338	+300	+ 63	+2 5	+188	+15	+113	+ 75	+38	0	−38	− 75	−113	−15	−188	−225	−263	−300	−338	−375
10	+343	+3 9	+ 75	+ 40	+ 06	+17	+137	+1 3	+ 69	+34	0	−34	− 69	−1 3	−137	−172	− 6	− 40	−275	−309	−343
12	+311	+ 80	+248	+ 17	+186	+155	+1 4	+ 93	+ 62	+31	0	−31	− 6	− 93	−124	−155	−186	−217	−248	− 80	−311
14	+ 77	+ 50	+2	+194	+166	+139	+111	+ 83	+ 55	+28	0	28	− 55	− 83	−111	−139	−166	−194	−222	−250	−277
16	+ 43	+ 19	+195	+170	+146	+12	+ 97	+ 73	+ 49	+24	0	− 4	− 49	− 73	− 97	−122	−146	−17	−195	−219	−243
18	+ 09	+188	+167	+146	+1 5	+104	+ 84	+ 63	+ 4	+ 1	0	− 1	− 42	63	− 84	−104	−125	−146	−167	−188	−209
20	+174	+156	+139	+1	+104	+ 87	+ 69	+ 52	+ 35	+17	0	−17	− 35	− 52	− 69	− 87	−104	−1 2	−139	−156	−174
22	+138	+1 4	+110	+ 96	+ 8	+ 69	+ 55	+ 41	+ 7	+14	0	−14	− 27	− 41	− 55	− 69	− 82	− 96	−110	−1 4	−138
24	+101	+ 90	+ 8	+ 70	+ 6	+ 50	+ 40	+ 30	+ 20	+10	0	−10	−	− 30	− 40	− 50	− 60	− 70	− 80	− 90	−101
26	+ 63	+ 56	+ 50	+ 44	+ 38	+ 31	+ 25	+ 19	+ 13	+ 6	0	− 6	− 13	− 19	− 5	− 31	− 38	− 44	− 50	− 56	63
28	+ 4	+	+ 19	+ 17	+ 14	+ 1	+ 10	+ 7	+ 5	+ 2	0	− 2	− 5	− 7	− 10	− 1	− 14	− 17	− 19	− 22	− 24
30	− 16	− 14	− 13	− 11	− 10	− 8	− 6	− 5	− 3	− 2	0	+ 2	+ 3	+ 5	+ 6	+ 8	+ 10	+ 11	+ 13	+ 14	+ 16
32	− 57	− 51	− 46	− 40	− 34	− 9	− 23	− 17	− 11	− 6	0	+ 6	+ 11	+ 17	+ 23	+ 29	+ 34	+ 40	+ 46	+ 51	+ 57
34	− 99	− 90	− 80	− 70	− 6	− 5	− 40	− 30	− 20	−10	0	+10	+ 0	+ 30	+ 40	+ 50	+ 60	+ 70	+ 80	+ 90	+ 99
36	−143	−1 9	−115	−100	− 86	− 7	− 57	− 43	− 9	−14	0	+14	+ 29	+ 43	+ 57	+ 72	+ 86	+100	+115	+129	+143
38	−189	−170	−151	−13	−113	− 94	− 75	− 57	− 38	−19	0	+19	+ 38	+ 57	+ 75	+ 94	+113	+132	+151	+170	+189
40	− 36	−21	−188	−165	−141	−118	− 94	− 71	− 47	−24	0	+24	+ 47	+ 71	+ 94	+118	+141	+165	+188	+212	+ 36
42	− 85	−256	−228	−199	−171	−14	−114	− 85	− 57	− 8	0	+28	+ 57	+ 85	+114	+142	+171	+199	+228	+256	+285
44	−335	−30	−268	− 35	− 01	−168	−134	−101	67	−34	0	+34	+ 67	+101	+134	+168	+2 1	+235	+268	+30	+335
46	−388	−350	−311	− 7	− 33	−194	−155	−117	− 78	−39	0	+39	+ 78	+117	+155	+194	+233	+ 72	+311	+350	+388
1 54	+388	+35	+311	+ 72	+233	+194	+155	+117	+ 78	+39	0	−39	− 78	−117	−155	−194	− 33	−272	−311	−350	−388
1 56	+335	+3	+268	+ 35	+201	+168	+134	+101	+ 67	+34	0	−34	67	−101	−134	−168	−201	−235	− 68	−302	−335
1 58	+ 85	+256	+ 8	+199	+171	+14	+114	+ 85	+ 57	+28	0	−28	− 57	− 85	−114	−142	−171	−199	−228	−256	−285
1 60	+ 36	+ 1	+188	+165	+141	+118	+ 94	+ 71	+ 47	+ 4	0	− 4	− 47	− 71	− 94	−118	−141	−165	−188	−212	−236
1 62	+189	+170	+151	+13	+113	+ 94	+ 75	+ 57	+ 38	+19	0	−19	− 38	− 57	− 75	− 94	−113	−132	−151	−170	−189
1 64	+143	+1 9	+115	+10	+ 86	+ 7	+ 57	+ 43	+ 9	+14	0	−14	− 9	− 43	− 57	− 72	− 86	−10	−115	−129	−143
1 66	+ 99	+ 90	+ 80	+ 7	+ 60	+ 50	+ 40	+ 3	+ 0	+10	0	−10	− 20	− 30	− 40	− 50	− 60	− 70	− 80	− 90	− 99
1 68	+ 57	+ 51	+ 46	+ 4	+ 34	+ 9	+ 3	+ 17	+ 11	+ 6	0	− 6	− 11	− 17	− 23	− 29	− 34	− 40	− 46	− 51	− 57
1 70	+ 16	+ 14	+ 13	+ 11	+ 10	+ 8	+ 6	+ 5	+ 3	+	0	− 2	− 3	− 5	− 6	− 8	− 10	− 11	− 13	− 14	− 16
1 72	− 4	− 2	− 19	− 17	− 14	− 1	− 10	− 7	− 5	−	0	+ 2	+ 5	+ 7	+ 10	+ 1	+ 14	+ 17	+ 19	+ 2	+ 24
1 74	− 63	− 56	− 50	− 44	− 38	− 31	− 5	− 19	− 13	− 6	0	+ 6	+ 13	+ 19	+ 25	+ 31	+ 38	+ 44	+ 50	+ 56	+ 63
1 76	−101	− 90	− 80	− 70	− 6	− 50	− 40	− 30	− 20	−10	0	+10	+ 0	+ 30	+ 4	+ 5	+ 60	+ 70	+ 80	+ 90	+101
1 78	−138	−124	−110	− 96	− 8	− 69	− 55	− 41	− 7	−14	0	+14	+ 27	+ 41	+ 55	+ 69	+ 82	+ 96	+110	+124	+138
1 80	−174	−156	−139	−12	−104	− 87	− 69	− 52	− 35	−17	0	+17	+ 35	+ 5	+ 69	+ 87	+104	+1	+139	+156	+174
1 82	− 09	−188	−167	−146	−125	−1 4	− 84	− 63	− 4	− 1	0	+ 1	+ 4	+ 63	+ 84	+1 4	+125	+146	+167	+188	+ 09
1 84	− 43	− 9	−195	−17	−146	−1	− 97	− 73	− 49	− 4	0	+ 4	+ 49	+ 73	+ 97	+1 2	+146	+170	+195	+ 19	+243
1 86	−277	− 50	−	−194	−166	−139	−111	− 83	− 55	− 8	0	+28	+ 55	+ 83	+111	+139	+166	+194	+ 22	+25	+ 77
1 88	−311	− 80	−248	− 17	−186	−155	−1 4	− 93	− 6	−31	0	+31	+ 6	+ 93	+124	+155	+186	+ 17	+248	+ 80	+311
1 90	−343	−309	−275	− 4	−206	−17	−137	−1 3	− 69	−34	0	+34	+ 69	+103	+137	+172	+206	+240	+ 75	+309	+343
1 92	−375	−338	−3 0	− 63	− 5	−188	−15	−113	− 75	−38	0	+38	+ 75	+113	+150	+188	+2 5	+263	+300	+338	+375
1 94	−407	−366	−326	− 85	− 44	− 04	−163	−12	− 81	−41	0	+41	+ 81	+1 2	+163	+ 04	+ 44	+285	+326	+366	+407
1 96	−438	−394	−351	−3 7	− 63	− 19	−175	−131	− 88	−44	0	+44	+ 88	+131	+175	+219	+ 63	+307	+351	+394	+438
1 98	−469	−4	−375	−328	−281	−234	−188	−141	− 94	−47	0	+47	+ 94	+141	+188	+234	+281	+328	+375	+422	+469
2 00	−499	−449	−399	−349	−299	−250	− 0	−150	−100	−50	0	+50	+1 0	+150	+200	+ 50	+299	+349	+399	+449	+499

Thi T bl mpl m t yt T bl L Vh th L tit d d i df m T bl XXXVII XLIV l b tw oo d 45 b t 55 d oo
t ppl ti t th L t t d whi h ll w f th ff t f th V i t p th S mid t Th it q l oooo

SATELLITE III

Tables of the Phenomena

XLIXa

Semiduration

1 Lat.	2 Ecl., Oc.	3 Δ ·001	4 ½Δ²	5 Corrⁿ. Sh., Tr.	6 Lat.
	d				
·000	...	...	...	...	2·000
·002	0·004721	1705	353	− 13	1·998
·004	6718	880	59	19	1·996
·006	8241	703	29	23	1·994
·008	9530	605	20	26	1·992
·010	10659	537	14	30	1·990
·012	0·011678	490	10	− 33	1·988
·014	12617	452	8	35	1·986
·016	13488	422	7	38	1·984
·018	14303	397	5	40	1·982
·020	15075	377	5	42	1·980
·022	0·015810	359	4	− 44	1·978
·024	16509	342	4	46	1·976
·026	17178	328	3	47	1·974
·028	17820	315	3	49	1·972
·030	18439	304	3	51	1·970
·032	0·019037	295	2	− 53	1·968
·034	19617	285	2	54	1·966
·036	20178	277	2	56	1·964
·038	20723	269	2	57	1·962
·040	21253	262	2	59	1·960
·042	0·021769	255	2	− 60	1·958
·044	22272	249	1	62	1·956
·046	22764	243	1	63	1·954
·048	23244	237	1	64	1·952
·050	23713	232	1	66	1·950
·052	0·024172	227	1	− 67	1·948
·054	24621	223	1	68	1·946
·056	25062	218	1	70	1·944
·058	25494	214	1	71	1·942
·060	25918	210	1	72	1·940
·062	0·026335	207	1	− 73	1·938
·064	26744	203	1	74	1·936
·066	27147	200	1	75	1·934
·068	27542	196	1	76	1·932
·070	27931	193	1	77	1·930
·072	0·028313	190	1	− 78	1·928
·074	28690	187	1	79	1·926
·076	29062	185	1	80	1·924
·078	29428	182	1	81	1·922
·080	29788	179	1	82	1·920
·082	0·030144	177	1	− 83	1·918
·084	30494	174	1	84	1·916
·086	30840	172	1	85	1·914
·088	31181	170	1	86	1·912
·090	31518	168	1	87	1·910
·092	0·031851	166	1	− 88	1·908
·094	32180	163	1	89	1·906
·096	32504	161	1	90	1·904
·098	32824	159	0	91	1·902
·100	0·033142	158	0	− 92	1·900

1 Lat.	2 Ecl., Oc.	3 Δ ·001	4 Corrⁿ. Sh., Tr.	5 Lat.
	d			
·100	0·033142	158	− 92	1·900
·102	33455	156	93	1·898
·104	33764	154	94	1·896
·106	34070	152	94	1·894
·108	34373	151	95	1·892
·110	34672	149	96	1·890
·112	0·034968	147	− 97	1·888
·114	35261	146	98	1·886
·116	35551	144	99	1·884
·118	35838	143	99	1·882
·120	36122	141	100	1·880
·122	0·036403	140	− 101	1·878
·124	36682	139	102	1·876
·126	36958	137	102	1·874
·128	37231	136	103	1·872
·130	37501	135	104	1·870
·132	0·037769	133	− 105	1·868
·134	38034	132	105	1·866
·136	38297	131	106	1·864
·138	38558	130	107	1·862
·140	38816	129	107	1·860
·142	0·039072	128	− 108	1·858
·144	39326	126	109	1·856
·146	39577	125	110	1·854
·148	39826	124	110	1·852
·150	40074	123	111	1·850
·152	0·040319	122	− 112	1·848
·154	40562	121	112	1·846
·156	40803	120	113	1·844
·158	41042	119	113	1·842
·160	41279	118	114	1·840
·162	0·041514	117	− 115	1·838
·164	41747	116	115	1·836
·166	41979	115	116	1·834
·168	42208	114	117	1·832
·170	42436	113	117	1·830
·172	0·042661	112	− 118	1·828
·174	42885	112	119	1·826
·176	43108	111	119	1·824
·178	43330	111	120	1·822
·180	43550	110	121	1·820
·182	0·043768	109	− 121	1·818
·184	43984	108	122	1·816
·186	44198	107	122	1·814
·188	44410	106	123	1·812
·190	44622	106	123	1·810
·192	0·044833	105	− 124	1·808
·194	45041	104	124	1·806
·196	45247	103	125	1·804
·198	45452	102	126	1·802
·200	0·045656	101	− 126	1·800

1 Lat.	2 Ecl., Oc.	3 Δ ·001	4 Corrⁿ. Sh., Tr.	5 Lat.
	d			
·200	0·045656	101,3	− 126	1·800
·205	46161	100,0	128	1·795
·210	46656	98,2	129	1·790
·215	47143	96,7	130	1·785
·220	47623	95,2	132	1·780
·225	48095	93,6	133	1·775
·230	0·048559	92,0	− 134	1·770
·235	49015	90,6	136	1·765
·240	49465	89,2	137	1·760
·245	49907	87,8	138	1·755
·250	50343	86,5	139	1·750
·255	0·050772	85,1	− 140	1·745
·260	51194	83,9	142	1·740
·265	51611	82,7	143	1·735
·270	52021	81,3	144	1·730
·275	52425	80,3	145	1·725
·280	0·052824	79,1	− 146	1·720
·285	53216	77,9	147	1·715
·290	53603	76,9	148	1·710
·295	53985	75,9	149	1·705
·300	54362	74,8	150	1·700
·305	0·054733	73,7	− 151	1·695
·310	55099	72,7	152	1·690
·315	55460	71,7	153	1·685
·320	55816	70,7	154	1·680
·325	56167	69,8	155	1·675
·330	0·056514	68,8	− 156	1·670
·335	56855	67,8	157	1·665
·340	57192	67,0	158	1·660
·345	57525	66,2	159	1·655
·350	57854	65,3	160	1·650
·355	0·058178	64,4	− 161	1·645
·360	58498	63,5	162	1·640
·365	58813	62,7	163	1·635
·370	59125	61,9	163	1·630
·375	59432	61,1	164	1·625
·380	0·059736	60,3	− 165	1·620
·385	60035	59,4	166	1·615
·390	60330	58,6	167	1·610
·395	60621	57,9	168	1·605
·400	60909	57,2	168	1·600
·405	0·061193	56,5	− 169	1·595
·410	61474	55,8	170	1·590
·415	61751	55,0	171	1·585
·420	62024	54,3	171	1·580
·425	62294	53,6	172	1·575
·430	0·062560	52,9	− 173	1·570
·435	62823	52,2	174	1·565
·440	63082	51,5	174	1·560
·445	63338	50,9	175	1·555
·450	0·063591	50,2	− 176	1·550

Applied Constant: − 0ᵈ·000100.

The Argument of Table XLIXa is the Latitude as derived from Tables XXXVII–XLIV, corrected by the entry of Table XLVIII. The entry must be corrected further by the entries of Tables LI–LV. For Shadows and Transits, the correction from Col. 4 or 5, and that for Phase from Table LXV must also be applied.

SATELLITE III

Tables of the Phenomena

XLIXb

Semiduration—*continued*

L t	Ecl Oc	3 Δ 0	4 Co Sh T	5 Lat
450	d 0 063191	50	−176	**1 550**
455	63441	49 6	176	**1 545**
460	63687	48 9	177	**1 540**
465	63930	48 3	178	**1 535**
470	6417	47 7	179	**1 530**
475	64407	47 1	179	**1 525**
480	0 064641	46 4	−180	**1 520**
485	64871	45 7	181	**1 515**
490	65 98	45	181	**1 510**
495	653 3	44 7	18	**1 505**
500	65545	44 0	18	**1 500**
505	0 065763	43 4	−183	**1 495**
510	65979	4 9	184	**1 490**
515	6619	4 3	184	**1 485**
520	66402	41 7	185	**1 480**
525	666 9	41 1	185	**1 475**
530	0 66813	40 6	−186	**1 470**
535	67 15	40 1	186	**1 465**
540	67 14	39 5	187	**1 460**
545	6741	39	187	**1 455**
550	676 4	38 5	188	**1 450**
555	067795	37 9	−189	**1 445**
560	67983	37 3	189	**1 440**
565	68168	36 8	190	**1 435**
570	68351	36 3	19	**1 430**
575	68531	35 8	19	**1 425**
580	0687 9	35 3	−191	**1 420**
585	68884	34 8	19	**1 415**
590	69 57	34 3	19	**1 410**
595	69 7	33 8	19	**1 405**
600	69395	33 3	193	**1 400**
605	0 069560	3 8	−193	**1 395**
610	69723	3 3	194	**1 390**
615	69883	31 8	194	**1 385**
620	70041	31 4	195	**1 380**
625	70197	30 8	195	**1 375**
630	0 070349	30 3	−195	**1 370**
635	70500	9 9	196	**1 365**
640	70648	9 4	196	**1 360**
645	70794	28 9	197	**1 355**
650	70937	8 5	197	**1 350**
655	0 071079	28 2	−198	**1 345**
660	71 19	7 6	198	**1 340**
665	71355	7	198	**1 335**
670	7149	26 7	199	**1 330**
675	716	26 2	199	**1 325**
680	0 07175	5 8	−200	**1 320**
685	71880	5 3	200	**1 315**
690	7 0 5	4 8	200	**1 310**
695	721 8	24 4	200	**1 305**
700	0 07 249	4 0	− 01	**1 300**

Lat	Ecl Oc	3 Δ 001	4 Cor Sh Tr	5 Lat
700	0 07 249	24	− 1	**1 300**
705	7 368	3 6	01	**1 295**
710	7 485	3 1	01	**1 290**
715	7 599	2 6	0	**1 285**
720	7 711		20	**1 280**
725	728 1	1 8	2	**1 275**
730	072929	1 4	− 03	**1 270**
735	73 35	21	03	**1 265**
740	73139	0 5	03	**1 260**
745	7324	1	203	**1 255**
750	73340	19 7	04	**1 250**
755	0 073437	19 3	−204	**1 245**
760	73533	18 9	04	**1 240**
765	736 6	18 4	05	**1 235**
770	73717	18 0	205	**1 230**
775	73806	17 6	205	**1 225**
780	0 073893	17	−206	**1 220**
785	73978	16 8	06	**1 215**
790	74061	16 4	06	**1 210**
795	7414	16	06	**1 205**
800	74 1	15 5	06	**1 200**
805	0 074297	15 1	− 06	**1 195**
810	7437	14 8	07	**1 190**
815	74445	14 4	07	**1 185**
820	74516	14 0	7	**1 180**
825	74585	13 6	07	**1 175**
830	0 07465	13 1	− 08	**1 170**
835	74716	12 7	08	**1 165**
840	74779	1 4	08	**1 160**
845	7484	1 0	208	**1 155**
850	74899	11 6	8	**1 150**
855	0 074956	11 2	− 09	**1 145**
860	75011	10 7	2 9	**1 140**
865	75063	1 3	09	**1 135**
870	75114	10 0	209	**1 130**
875	75163	9 6	9	**1 125**
880	0 75210	9 3	− 09	**1 120**
885	75256	8 9	209	**1 115**
890	75 99	8 4	209	**1 110**
895	75340	8 1	209	**1 105**
900	7538	7 7	09	**1 100**
905	0 075417	7	−209	**1 095**
910	7545	6 9	10	**1 090**
915	75486	6 5	21	**1 085**
920	75517	6 1	210	**1 080**
925	75547	5 7	21	**1 075**
930	0 075574	5 3	− 10	**1 070**
935	75600	5 0	21	**1 065**
940	756 4	4 6	210	**1 060**
945	75646	4	210	**1 055**
950	0 075666	3 9	− 10	**1 050**

Lat	Ecl Oc	3 Δ 00	4 Cor Sh Tr	5 Lat
950	0 075666	3 9	−210	**1 050**
955	75685	3 5	210	**1 045**
960	757 1	3 0	210	**1 040**
965	75715	6	210	**1 035**
970	757 7	3	1	**1 030**
975	75738	1 9	1	**1 025**
980	0 075746	1 5	−210	**1 020**
985	75753	1	211	**1 015**
990	75758	0 8	211	**1 010**
995	75761	0 4	211	**1 005**
1 000	0 075762	0	−211	**1 000**

Add l C t t oo oo Il A g t f tli l ll i tl L tilt d l i d f l ll XXXVII XLIV

Il t y t b t d ly tl t l f T ll L IV I Sl d w d L it tl rr tl f m l m t b ppli d l l th t f J pit pl f m T bl LXV

SATELLITE III

Tables of the Phenomena

Equation of Semiduration

L

Var. / Lat.	−·010	−·009	−·008	−·007	−·006	−·005	−·004	−·003	−·002	−·001	·000	+·001	+·002	+·003	+·004	+·005	+·006	+·007	+·008	+·009	+·010	Var. / Lat.
·44	228	245	262	280	297	314	331	348	366	383	400	417	434	452	469	486	503	520	538	555	572	1·56
·46	211	230	249	268	287	305	324	343	362	381	400	419	438	457	476	495	513	532	551	570	589	1·54
·48	195	215	236	256	277	297	318	338	359	379	400	421	441	462	482	503	523	544	564	585	605	1·52
·50	179	202	224	246	268	290	312	334	356	378	400	422	444	466	488	510	532	554	576	598	621	1·50
·52	165	189	212	235	259	283	306	329	353	377	400	423	447	471	494	517	541	565	588	611	635	1·48
·54	151	177	201	226	251	276	301	325	350	375	400	425	450	475	499	524	549	574	599	623	649	1·46
·56	139	165	191	217	243	270	296	322	347	374	400	426	453	478	504	530	557	583	609	635	661	1·44
·58	127	155	182	209	236	264	291	318	345	373	400	427	455	482	509	536	564	591	618	645	673	1·42
·60	116	145	173	201	230	258	287	315	343	372	400	428	457	485	513	542	570	599	627	655	684	1·40
·62	106	136	165	194	223	253	282	312	341	371	400	429	459	488	518	547	577	606	635	664	694	1·38
·64	96	127	157	187	218	249	279	309	339	370	400	430	461	491	521	551	582	613	643	673	704	1·36
·66	87	119	150	181	212	244	275	306	337	369	400	431	463	494	525	556	588	619	650	681	713	1·34
·68	79	111	143	175	207	240	272	304	335	368	400	432	465	496	528	560	593	625	657	689	721	1·32
·70	71	104	137	170	202	236	269	301	334	367	400	433	466	499	531	564	598	630	663	696	729	1·30
·72	64	98	131	165	198	232	266	299	332	367	400	433	468	501	534	568	602	635	669	702	736	1·28
·74	57	92	126	160	194	229	263	297	331	366	400	434	469	503	537	571	606	640	674	708	743	1·26
·76	51	87	121	156	190	226	261	295	330	365	400	435	470	505	539	574	610	644	679	713	749	1·24
·78	45	81	117	152	187	223	258	294	329	365	400	435	471	506	542	577	613	648	683	719	755	1·22
·80	40	77	113	148	184	221	256	292	328	364	400	436	472	508	544	579	616	652	687	723	760	1·20
·82	36	73	109	145	181	218	254	291	327	364	400	436	473	509	546	582	619	655	691	727	764	1·18
·84	32	70	106	143	179	217	253	290	326	364	400	436	474	510	547	583	621	657	694	730	768	1·16
·86	28	66	103	140	177	215	252	288	325	363	400	437	475	512	548	585	623	660	697	734	772	1·14
·88	25	64	101	138	175	213	250	288	325	363	400	437	475	512	550	587	625	662	699	736	775	1·12
·90	23	61	99	136	173	212	249	287	324	363	400	437	476	513	551	588	627	664	701	739	777	1·10
·92	21	59	97	135	172	211	249	286	324	362	400	438	476	514	551	589	628	665	703	741	779	1·08
·94	19	58	96	133	171	210	248	286	323	362	400	438	477	514	552	590	629	667	704	742	781	1·06
·96	18	57	95	133	170	209	247	285	323	362	400	438	477	515	553	591	630	667	705	743	782	1·04
·98	17	56	94	132	170	209	247	285	323	362	400	438	477	515	553	591	630	668	706	744	783	1·02
1·00	17	56	94	132	170	209	247	285	323	362	400	438	477	515	553	591	630	668	706	744	783	1·00

Applied Constant: +400. The unit in this Table equals $0^{d}{\cdot}000001$.

This Table is complementary to Table XLVIII. It shows a correction to be applied to the Semiduration as derived from Table XLIX^{b}, due to the Variation, when the Latitude as found from Tables XXXVII–XLIV lies between ·45 and 1·55.

SATELLITE III

Tables of the Phenomena

Equations of Semiduration

LI — Ecl Oc

	E l Oc	α	Ecl Oc
0	+ 000017	2400	− 000016
200	16	2600	14
400	14	2800	10
600	11	3000	6
800	7	3200	− 1
1000	+	3400	+ 4
1200	− 0 0003	3600	+ 0 0008
1400	8	3800	1
1600	12	4000	15
1800	15	4200	17
2000	17	4400	17
2200	− 000017	4600	+ 000016
2400	16	4800	13
2600	000014	5000	+ 00001

N C t tl b ll d

LII — Ecl, Oc, Sh, Tr

β \ Lat (d)	20 00	19 01	18 02	17 03	16 04	15 05	14 06	13 07	12 08	11 09	10
0	10	10	10	10	10	10	10	10	10	10	10
20	10	11	11	11	12	1	1	12	1	1	1
40	10	1	1	13	13	13	14	14	14	14	14
60	10	13	14	14	15	15	16	16	16	16	16
80	1	13	14	15	16	16	16	17	17	17	17
100	10	13	14	15	16	16	16	17	17	17	17
120	10	13	14	15	16	16	16	17	17	17	17
140	1	13	14	14	15	15	16	16	16	16	16
160	1	1	12	13	13	13	14	14	14	14	14
180	10	11	11	11	1	12	12	12	12	12	1
200	10	10	10	10	10	10	10	10	10	10	10
220	10	9	9	9	8	8	8	8	8	8	8
240	10	8	8	7	7	7	6	6	6	6	6
260	10	7	6	6	5	5	4	4	4	4	4
280	10	7	6	5	4	4	4	3	3	3	3
300	10	7	6	5	4	4	4	3	3	3	3
320	10	7	6	5	4	4	4	3	3	3	3
340	10	7	6	6	5	5	4	4	4	4	4
360	10	8	8	7	7	7	6	6	6	6	6
380	10	9	9	9	8	8	8	8	8	8	8
400	10	10	10	10	10	10	10	10	10	10	10

Appli d C t t + ooo Il it l l oo oo

LIII — Oc, Tr

β \ Lat (d)	1 98 02	1 96 04	1 94 06	1 92 08	1 90 10	1 88 12	1 86 14	1 84 16	1 82 18	18 2	17 3	16 4	15 5	14 6	13 7	12 8	11 9	10
0	±101	±71	±59	±51	±46	±4	±39	±37	±35	±33	±28	±25	±23	±2	±21	±20	±20	± 0
20	96	68	56	48	44	40	37	35	33	32	27	4	22	1	20	19	19	19
40	8	57	47	41	37	34	31	9	28	7	22	20	18	17	17	16	16	16
60	60	43	35	31	7	5	4	2	21	0	17	15	14	13	13	12	1	12
80	±3	±	±18	±15	±14	±13	±1	±11	±1	±10	± 8	± 8	± 7	± 7	± 6	± 6	± 6	± 6
100	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	∓30	∓21	∓18	∓15	∓14	∓13	∓1	∓11	∓10	∓10	∓ 8	∓ 8	∓ 7	∓ 7	∓ 6	∓ 6	∓ 6	∓ 6
140	60	43	35	31	7	25	4		1	20	17	15	14	13	13	12	12	1
160	80	57	47	41	37	34	31	9	8	7	2	20	18	17	17	16	16	16
180	96	68	56	48	44	40	37	35	33	3	7	24	2	1	20	19	19	19
200	101	71	59	51	46	42	39	37	35	33	8	5	23	22	21	0	20	20
220	∓96	∓68	∓56	∓48	∓44	∓40	∓37	∓35	∓33	∓3	∓ 7	∓24	∓22	∓21	∓20	∓19	∓19	∓19
240	80	57	47	41	37	34	31	9	28	7	22	20	18	17	17	16	16	16
260	6	43	35	31	7	25	24	22	21	0	17	15	14	13	13	12	12	12
280	∓30	∓21	∓18	∓15	∓14	∓13	∓12	∓11	∓10	∓10	∓ 8	∓ 8	∓ 7	∓ 7	∓ 6	∓ 6	∓ 6	∓ 6
300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	±30	±21	±18	±15	±14	±13	±12	±11	±10	±10	± 8	± 8	± 7	± 7	± 6	± 6	± 6	± 6
340	60	43	35	31	7	25	24	2	1	2	17	15	14	13	13	12	12	12
360	80	57	47	41	37	34	31	9	28	27	2	0	18	17	17	16	16	16
380	96	68	56	48	44	40	37	35	33	32	27	24	22	21	0	19	19	19
400	±101	±71	±59	±51	±46	±4	±39	±37	±35	±33	±28	±25	±23	±22	±21	±20	±20	±20

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Tables of the Phenomena

Equation of Semiduration

O \ S	0d·0	0d·4	0d·8	1d·2	1d·6	2d·0	2d·4	2d·8	3d·2	3d·6	4d·0	4d·4	4d·8	5d·2	5d·6	6d·0	6d·4	6d·8	7d·2	7d·6	8d·0
d 0·0	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
0·2	92	93	93	93	94	93	93	92	92	91	91	91	90	90	90	91	91	92	93	93	93
0·4	98	99	100	100	100	100	99	98	97	96	95	94	94	94	94	95	96	97	98	99	99
0·6	107	109	110	110	110	109	108	106	104	102	101	100	100	100	101	102	104	105	107	109	110
0·8	116	118	120	121	120	119	117	114	111	109	106	105	105	105	106	108	111	114	116	118	110
1·0	123	126	128	129	129	127	124	120	116	113	110	109	108	109	111	114	117	120	124	127	129
1·2	126	129	132	134	133	131	128	124	119	115	112	110	109	110	112	115	118	122	126	130	133
1·4	125	129	133	135	135	133	129	125	119	115	112	110	109	109	111	114	117	121	126	130	133
1·6	120	125	130	134	135	134	130	126	120	115	110	107	106	105	106	108	112	116	121	126	131
1·8	118	123	129	133	136	135	133	128	123	118	113	110	107	106	106	108	110	114	118	124	129
2·0	115	120	126	131	134	135	133	130	125	120	116	112	109	107	107	107	109	112	116	121	126
2·2	116	120	125	130	134	135	135	133	130	125	121	117	114	111	110	109	110	113	116	121	126
2·4	114	117	122	126	129	131	131	130	127	124	120	116	113	111	109	109	109	111	114	118	122
2·6	111	114	118	121	124	126	127	126	124	121	118	115	112	109	108	107	107	109	111	114	118
2·8	108	111	114	117	119	120	120	120	118	115	112	110	107	105	104	104	104	106	108	111	114
3·0	102	104	106	108	109	110	110	109	108	106	105	103	101	100	99	99	100	101	102	104	106
3·2	95	96	98	99	99	100	100	99	99	97	96	95	94	93	93	93	94	94	95	97	98
3·4	92	92	93	93	93	93	93	93	92	92	91	91	90	90	90	90	91	91	92	92	93
3·6	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
3·8	92	91	91	90	90	90	91	91	91	93	93	94	94	94	94	94	93	92	92	91	90
4·0	97	96	95	95	94	95	95	96	98	99	100	101	101	101	101	100	99	98	97	96	95
4·2	103	102	101	100	100	101	102	104	106	108	110	111	112	112	111	109	107	105	103	102	100
4·4	108	106	105	105	105	107	109	111	114	117	119	121	121	121	119	117	114	111	108	106	105
4·6	113	110	109	108	109	111	113	117	120	124	127	129	130	129	127	124	120	116	113	110	109
4·8	115	112	110	109	109	111	114	117	121	125	129	132	134	133	131	127	123	119	114	111	109
5·0	115	111	109	108	108	110	113	116	120	125	129	133	135	136	133	129	124	119	114	111	109
5·2	117	113	110	108	108	109	111	114	118	123	128	133	136	138	136	132	127	122	117	113	110
5·4	119	114	110	108	106	107	107	109	113	117	122	128	133	135	136	133	129	124	118	114	110
5·6	122	118	113	110	108	107	107	109	111	115	120	126	130	134	135	134	131	127	122	117	113
5·8	124	120	115	112	109	108	108	109	111	115	119	124	129	133	134	134	132	128	124	119	115
6·0	125	121	117	114	111	109	108	109	111	114	118	122	126	130	131	132	131	128	125	121	117
6·2	120	117	114	111	109	107	107	107	109	112	115	118	122	124	126	126	125	123	120	117	114
6·4	113	110	108	105	104	103	102	103	104	106	108	111	114	116	117	117	116	115	113	110	107
6·6	104	102	101	99	98	97	97	97	98	100	102	103	105	106	107	107	107	105	104	102	100
6·8	97	96	94	93	93	93	93	93	94	95	96	97	98	99	99	99	98	98	97	95	94
7·0	91	91	90	90	90	90	90	90	91	91	92	92	93	93	93	93	92	92	91	91	90
7·2	90	90	91	91	91	91	91	91	90	90	90	90	90	90	90	90	90	90	90	90	91
7·4	93	94	95	95	95	95	94	94	93	92	92	92	91	91	91	92	92	93	94	94	95
7·6	100	101	102	103	103	102	101	100	98	96	95	95	94	94	95	96	97	99	100	101	102
7·8	109	111	113	113	113	112	110	108	106	104	102	100	100	100	101	103	105	107	109	111	113
8·0	117	119	121	122	121	120	117	114	111	108	106	105	105	105	107	109	112	115	117	120	121

Applied Constant: + 90. The unit in this Table equals 0d·000001.

SATELLITE III

Tables of the Phenomena

LV — Equation of Semiduration — Sh , Tr

S / O	$0^{d}0$	$0^{d}4$	$0^{d}8$	$1^{d}2$	$1^{d}6$	$2^{d}0$	$2^{d}4$	$2^{d}8$	$3^{d}2$	$3^{d}6$	$4^{d}0$	$4^{d}4$	$4^{d}8$	$5^{d}2$	$5^{d}6$	$6^{d}0$	$6^{d}4$	$6^{d}8$	$7^{d}2$	$7^{d}6$	$8^{d}0$
00	2		3	24	25	7	8	29	30	30	3	29	8	27	25	24	23	22	22	22	3
02	7	28	9	30	3	33	34	34	35	34	33	32	30	29	27	27	26	7	28	28	29
04	41	4	44	45	47	48	48	47	47	46	44	4	41	40	38	38	39	39	41	42	43
06	61	63	65	66	67	68	67	66	64	6	60	58	57	56	56	56	57	59	61	63	65
08	8	85	88	90	90	90	88	86	83	80	77	75	74	73	73	74	77	80	82	85	88
10	101	1 5	107	109	110	109	106	102	98	95	91	9	88	88	89	92	95	98	102	106	109
12	114	117	1 1	124	1 3	122	119	115	110	106	10	1	98	99	10	103	106	110	114	119	12
14	1 0	124	128	131	131	1 9	126	122	116	111	108	106	105	104	106	109	112	116	121	1 5	128
16	119	1 4	1 9	133	134	133	129	1 5	119	114	109	106	105	104	105	107	111	115	120	125	130
18	118	1 3	1 9	133	136	135	133	1 8	1 3	118	113	110	107	106	106	108	110	114	118	1 4	129
20	1 4	119	1 5	130	133	134	13	1 9	1 3	118	114	110	107	106	106	106	108	111	115	120	125
22	11	116	1 1	126	130	130	130	1 8	124	119	115	111	108	105	105	104	105	109	11	117	122
24	1 4	107	112	116	119	1 0	120	118	114	111	107	103	100	98	97	97	98	100	104	108	11
26	92	95	99	1 2	105	1 6	106	104	102	98	95	9	89	86	86	86	87	90	92	95	99
28	78	81	84	87	88	88	87	86	83	80	76	75	7	71	71	72	73	75	78	81	84
30	61	63	65	66	66	66	65	63	61	59	57	55	54	54	54	55	57	59	61	63	65
32	44	45	46	47	46	45	44	4	41	38	37	37	37	37	38	39	41	42	44	46	46
34	34	34	34	34	3	31	30	8	6	26	5	26	26	27	28	30	31	32	34	34	34
36	30	3	9	8	7	5	4	23		2		23	24	25	7	28	29	30	30	30	9
38	35	34	33	31	9	8	8	7	6	8	9	31	32	33	35	36	36	35	35	34	3
40	48	46	44	43	41	41	40	40	42	43	45	46	48	49	50	50	50	49	48	46	44
42	64	63	61	59	57	57	57	59	61	63	66	68	70	71	71	70	68	66	64	62	59
44	81	78	76	75	74	75	77	78	81	85	87	90	91	92	91	90	87	84	81	78	76
46	96	93	91	9	9	91	9	96	99	104	107	110	112	111	110	107	104	100	96	93	91
48	1 7	1 3	101	99	99	10	1 3	1 6	110	114	118	1 2	125	1 4	12	119	115	111	106	102	10
50	11	1 8	106	104	104	1 6	108	111	115	120	125	1 9	131	133	130	126	121	116	111	108	106
52	117	113	11	107	107	1 8	110	113	117	122	1 7	132	135	137	135	132	127	122	117	113	109
54	119	114	110	108	106	107	107	109	113	117	1 2	1 8	133	135	136	133	129	1 4	118	114	110
56	12	116	111	108	106	105	106	108	110	114	119	1 5	1 9	133	134	132	129	125	120	115	111
58	118	113	108	1 6	103	1 2	103	104	106	110	115	120	125	128	1 9	129	126	122	118	112	108
60	111	107	103	10	97	96	95	97	100	103	107	111	115	118	119	120	118	114	111	107	103
62	96	9	89	86	85	84	85	86	88	9	95	98	101	103	105	104	102	99	95	92	89
64	76	73	71	69	68	68	68	7	7	75	77	80	83	84	84	83	81	79	76	73	7
66	55	53	5	50	50	51	5	53	55	57	60	6	62	62	62	60	59	56	55	53	51
68	37	36	35	34	36	37	38	39	41	43	44	44	45	44	43	42	40	39	37	36	35
70	5	5	24	5	7	28	29	30	3	33	33	33	33	3	30	29	27	26	25	25	24
72	2	23	4	25	7	8	29	30	30	30	30	29	28	7	25	4	3	2	2	22	4
74	9	30	3	34	35	36	36	37	37	36	35	34	3	31	30	29	9	29	30	31	33
76	45	46	48	51	52	5	5	5	50	48	46	45	43	42	4	41	42	44	45	46	48
78	65	68	71	7	73	73	7	71	69	66	64	6	6	59	58	60	61	63	65	68	71
80	86	89	92	94	93	93	91	88	85	82	79	77	76	75	77	78	81	84	86	90	92

Appli d C t t +9 Th iti this T bl i q lt ooooo

SATELLITE III

Tables of the Phenomena

LVI **Reduction to Middle** **Argument O**

1	2	3	4	5
Ecl., Oc.	Δ $0^d \cdot 01$	O	Sh., Tr.	Δ $0^d \cdot 01$
d		d	d	
−0·000360	−27,5	**0·00**	−0·000440	−36,0
470	27,5	**·04**	584	35,9
580	27,3	**·08**	727	35,6
688	26,8	**·12**	869	35,3
794	26,3	**·16**	1009	34,6
898	25,8	**·20**	1146	33,8
−0·001000	−25,1	**0·24**	−0·001279	−32,8
1099	24,4	**·28**	1408	31,6
1195	23,4	**·32**	1532	30,4
1286	21,8	**·36**	1651	29,1
1373	21,0	**·40**	1765	27,5
−0·001454	−19,6	**0·44**	−0·001871	−25,6
1530	18,3	**·48**	1970	23,9
1600	16,8	**·52**	2062	22,0
1664	15,3	**·56**	2146	19,9
1722	13,6	**·60**	2221	17,8
−0·001773	−11,9	**0·64**	−0·002288	−15,6
1817	10,1	**·68**	2346	13,3
1854	8,4	**·72**	2394	10,9
1884	6,5	**·76**	2433	8,5
1906	4,5	**·80**	2462	6,0
−0·001920	−2,6	**0·84**	−0·002481	−3,4
1927	−0,6	**·88**	2489	−0,9
1925	+1,4	**·92**	2488	+1,6
1916	3,1	**·96**	2476	4,1
1900	5,0	**1·00**	2455	6,6
−0·001876	+7,0	**1·04**	−0·002423	+9,1
1844	8,9	**·08**	2382	11,5
1805	10,6	**·12**	2331	13,9
1759	12,3	**·16**	2271	16,1
1707	14,0	**·20**	2202	18,4
−0·001647	+15,8	**1·24**	−0·002124	+20,6
1581	17,3	**·28**	2037	22,6
1509	18,8	**·32**	1943	24,4
1431	20,1	**·36**	1842	26,3
1348	21,3	**·40**	1733	28,0
−0·001261	+22,4	**1·44**	−0·001618	+29,4
1169	23,6	**·48**	1498	30,8
1072	24,6	**·52**	1372	32,1
972	25,3	**·56**	1241	33,1
870	25,9	**·60**	1107	34,0
−0·000765	+26,6	**1·64**	−0·000969	+34,8
657	27,1	**·68**	829	35,4
548	27,3	**·72**	686	35,8
439	27,4	**·76**	543	35,9
329	27,5	**·80**	399	36,0
−0·000219	+27,4	**1·84**	−0·000255	+35,9
110	27,1	**·88**	− 112	35,5
− 2	26,9	**·92**	+ 29	35,0
+ 105	26,4	**·96**	168	34,4
+0·000209	+25,6	**2·00**	+0·000304	+33,5

1	2	3	4	5
Ecl., Oc.	Δ $0^d \cdot 01$	O	Sh., Tr.	Δ $0^d \cdot 01$
d		d	d	
+0·000209	+25,6	**2·00**	+0·000304	+33,5
310	24,8	**·04**	436	32,5
407	23,9	**·08**	564	31,4
501	23,0	**·12**	687	30,0
591	21,9	**·16**	804	28,6
676	20,6	**·20**	916	27,0
+0·000756	+19,4	**2·24**	+0·001020	+25,3
831	17,9	**·28**	1118	23,5
899	16,3	**·32**	1208	21,4
961	14,8	**·36**	1289	19,3
1017	13,3	**·40**	1362	17,1
+0·001067	+11,5	**2·44**	+0·001426	+14,9
1109	9,5	**·48**	1481	12,5
1143	7,6	**·52**	1526	10,1
1170	5,9	**·56**	1562	7,8
1190	4,1	**·60**	1588	5,3
+0·001203	+2,1	**2·64**	+0·001604	+2,8
1207	+0,1	**·68**	1610	+0,3
1204	−1,8	**·72**	1606	−2,4
1193	3,8	**·76**	1591	4,9
1174	5,6	**·80**	1567	7,4
+0·001148	−7,5	**2·84**	+0·001532	−9,9
1114	9,4	**·88**	1488	12,1
1073	11,1	**·92**	1435	14,5
1025	12,8	**·96**	1372	16,9
971	14,5	**3·00**	1300	19,0
+0·000909	−16,3	**3·04**	+0·001220	−21,1
841	17,8	**·08**	1131	23,1
767	19,1	**·12**	1035	25,0
688	20,4	**·16**	931	26,8
604	21,6	**·20**	821	28,4
+0·000515	−22,8	**3·24**	+0·000704	−29,9
422	23,9	**·28**	582	31,1
324	24,9	**·32**	455	32,4
223	25,5	**·36**	323	33,4
120	26,1	**·40**	188	34,1
+0·000014	−26,8	**3·44**	+0·000050	−34,9
− 94	27,1	**·48**	− 91	35,5
203	27,3	**·52**	234	35,9
312	27,4	**·56**	378	36,0
422	27,4	**·60**	522	35,9
−0·000532	−27,4	**3·64**	−0·000665	−35,8
641	27,1	**·68**	808	35,4
749	26,6	**·72**	948	34,9
854	26,0	**·76**	1087	34,3
957	25,5	**·80**	1222	33,3
−0·001058	−24,6	**3·84**	−0·001353	−32,1
1154	23,6	**·88**	1479	31,0
1247	22,8	**·92**	1601	29,8
1336	21,5	**·96**	1717	28,1
−0·001419	−20,1	**4·00**	−0·001826	−26,4

Applied Constant: $-0^d \cdot 000400$. This Table includes a constant portion of the Equation of Light. The Entry must be corrected by the Equations of Tables LVII–LXIV. The whole must be corrected by adding to it its product by the Variation, as drawn from Tables XXXIII–XXXVI. For Shadows and Transits it must also be corrected for Jupiter's Phase by Table LXV.

Tables of the Phenomena

LVI *continued* — **Reductions to Middle** — **Argument O**

		3	4	5
Ecl Oc	Δ o o	O	Sl T	Δ o o1
d				
−0 001419	− 0 1	**4 00**	−0 001826	−26 4
1497	18 9	**04**	19 8	4 6
1570	17 4	**08**	023	8
1636	15 9	**12**	110	0 8
1697	14 4	**16**	2189	18 8
1751	1 6	**20**	2 60	16 5
−0 0 1798	−10 9	**4 24**	−0 0 3 1	−14 1
1838	9 1	**28**	2373	11 9
1871	7 3	**32**	2416	9 5
1896	5 4	**36**	449	7 1
1914	3 5	**40**	2473	4
−0 0019 4	− 1 5	**4 44**	−0 002486	− 1 9
19 6	+ 5	**48**	2488	+ 6
19	2 4	**52**	481	3
19 7	4 3	**56**	464	5 5
1886	6 1	**60**	2437	8 0
−0 001858	+ 8 0	**4 64**	−0 002400	+10 5
182	9 9	**68**	2353	1 9
1779	11 6	**72**	2297	15 1
17 9	13 3	**76**	2 32	17 4
1673	14 9	**80**	158	19 6
−0 001610	+16 6	**4 84**	−0 00 75	+21 8
1540	18 1	**88**	1984	3 6
1465	19 5	**92**	1886	5 5
1384	0 8	**96**	1780	27 3
1299	1 9	**5 00**	1668	8 8
−0 001 09	+ 3 1	**5 04**	−0 001550	+30 3
1114	4 3	**08**	1426	31 5
1015	5 0	**12**	1298	32 6
914	25 6	**16**	1165	33 6
810	6 3	**20**	10 9	34 4
−0 000704	+ 6 9	**5 24**	−0 000890	+35 1
595	7 3	**28**	748	35 6
486	7 3	**32**	6 5	35 9
377	7 4	**36**	461	36 0
267	27 5	**40**	317	35 9
−0 000157	+ 7 3	**5 44**	−0 000174	+35 6
− 49	27 0	**48**	− 3	35 3
+ 59	26 6	**52**	+ 108	34 6
164	5 9	**56**	45	33 9
66	25 1	**60**	379	33 0
+0 000365	+24 4	**5 64**	+0 0005 9	+31 9
461	3 5	**68**	634	30 5
553	3	**72**	753	9 1
639	1 0	**76**	867	7 8
721	0	**80**	975	26 1
+0 0799	+18 6	**5 84**	+0 001076	+24 4
870	16 9	**88**	1170	2 3
934	15 4	**92**	1254	0 0
993	13 9	**96**	1330	18 0
+0 001045	+1 1	**6 00**	+0 0 1398	+15 9

		3	4	5
Ecl Oc	Δ o^d o1	O	Sh T	Δ o o1
		d	d	
+0 001045	+12 1	**6 00**	+0 001398	+15 9
109	10 4	**04**	1457	13 6
11 8	8 5	**08**	1507	11 3
1158	6 6	**12**	1547	8 8
1181	4 9	**16**	1577	6 3
1197	3 0	**20**	1597	3 8
+0 012 5	+ 1 0	**6 24**	+0 001607	+ 1 4
1 5	− 1 0	**28**	1608	− 1 3
1197	2 9	**32**	1597	3 9
1182	4 8	**36**	1577	6 3
1159	6 6	**40**	1547	8 8
+0 0011 9	− 8 5	**6 44**	+0 001507	−11 1
1091	10 4	**48**	1458	13 5
1046	12 1	**52**	1399	15 9
994	13 8	**56**	1331	18 1
936	15 5	**60**	1254	0 3
+0 000870	−17 1	**6 64**	+0 001169	−22 3
799	18 5	**68**	1076	24 1
722	19 9	**72**	976	25 9
640	21 1	**76**	869	27 6
553	2 3	**80**	755	9 3
+0 000462	− 3 4	**6 84**	+0 000635	−30 6
366	24 4	**88**	510	31 9
67	5 3	**92**	380	33 0
164	6 0	**96**	246	33 9
+ 59	26 4	**7 00**	+ 109	34 5
−0 000047	−26 9	**7 04**	−0 000030	−35 1
156	7 3	**08**	172	35 8
65	27 3	**12**	316	36 0
374	27 5	**16**	460	35 9
485	27 5	**20**	603	35 8
−0 000594	−27 1	**7 24**	−0 000746	−35 6
70	26 9	**28**	888	35 1
809	26 4	**32**	1027	34 4
913	5 6	**36**	1163	33 6
1014	25 0	**40**	1296	32 8
−0 001113	−24 1	**7 44**	−0 001425	−31 5
1207	23 1	**48**	1548	30 3
1298	22 3	**52**	1667	28 9
1385	21	**56**	1779	27 4
1466	19 5	**60**	1886	5 8
−0 001541	−18 0	**7 64**	−0 001985	−23 8
1610	16 6	**68**	2076	21 6
1674	15 1	**72**	2158	19 6
1731	13 4	**76**	33	17 6
1781	11 6	**80**	2299	15 1
−0 001824	− 9 9	**7 84**	−0 002354	−12 8
1860	8 1	**88**	2401	10 6
1889	6 3	**92**	2439	8 0
1910	4 3	**96**	2465	5 1
−0 0019 3	− 3	**8 00**	−0 002480	− 2 4

Appl d C t t 004 t d b tl Eq t f T bl LVII LXIV T bl XXXIII XXXVI

Thi T bl i l des t t p rtl f th Eq t f Light Th E t ym tb Th wh l m tb t d by ddi g to it it p d t by th V l ti dr w fr m T Sh d w d T t it m t l b t d f J pit Ph by T bl LXV

SATELLITE III

Tables of the Phenomena

Equations of the Reduction

LVII

1	2
P	E., O., S., T.
d	d
0·0	0·000020
·1	24
·2	27
·3	30
·4	32
·5	35
0·6	0·000037
·7	38
·8	39
·9	39
1·0	39
1·1	0·000038
·2	37
·3	35
·4	32
·5	29
1·6	0·000026
·7	23
·8	19
·9	16
2·0	13
2·1	0·000010
·2	7
·3	5
·4	3
·5	2
2·6	0·000001
·7	1
·8	1
·9	2
3·0	3
3·1	0·000005
·2	8
·3	11
·4	14
·5	17
3·6	0·000021
·7	24
·8	27
·9	30
4·0	0·000033

Constant: $+0^d{\cdot}000020$.

LVIII

1	2	3	4	5
Ecl., Oc.	Δ $0^d{\cdot}01$	Q	Sh., Tr.	Δ $0^d{\cdot}01$
d		d	d	
0·000290	−3,5	0·00	0·000290	−4,0
276	3,5	·04	274	4,0
262	3,5	·08	258	4,0
248	3,4	·12	242	3,9
235	3,4	·16	227	3,9
221	3,4	·20	211	3,9
0·000208	−3,3	0·24	0·000196	−3,6
195	3,1	·28	182	3,5
183	2,9	·32	168	3,4
172	2,8	·36	155	3,3
161	2,6	·40	142	3,1
0·000151	−2,5	0·44	0·000130	−2,9
141	2,4	·48	119	2,6
132	2,3	·52	109	2,4
123	2,0	·56	100	2,3
116	1,8	·60	91	2,0
0·000109	−1,5	0·64	0·000084	−1,8
104	1,3	·68	77	1,5
99	1,1	·72	72	1,3
95	0,8	·76	67	0,9
93	0,5	·80	65	0,6
0·000091	−0,4	0·84	0·000062	−0,5
90	−0,1	·88	61	0,0
90	+0,1	·92	62	+0,3
91	0,4	·96	63	0,5
93	0,6	1·00	66	0,8
0·000096	+0,9	1·04	0·000069	+1,0
100	1,1	·08	74	1,4
105	1,4	·12	80	1,5
111	1,6	·16	86	1,8
118	1,8	·20	94	2,0
0·000125	+2,0	1·24	0·000102	+2,3
134	2,3	·28	112	2,6
143	2,4	·32	123	2,8
153	2,6	·36	134	2,9
164	2,8	·40	146	3,0
0·000175	+2,8	1·44	0·000158	+3,2
186	3,0	·48	172	3,4
199	3,2	·52	185	3,5
212	3,3	·56	200	3,8
225	3,3	·60	215	3,9
0·000238	+3,4	1·64	0·000231	+3,9
252	3,5	·68	246	4,0
266	3,5	·72	263	4,0
280	3,5	·76	278	3,9
294	3,5	·80	294	4,1
0·000308	+3,5	1·84	0·000311	+4,0
322	3,4	·88	326	3,9
335	3,4	·92	342	4,0
349	3,4	·96	358	3,9
0·000362	+3,3	2·00	0·000373	+3,6

1	2	3	4	5
Ecl., Oc.	Δ $0^d{\cdot}01$	Q	Sh., Tr.	Δ $0^d{\cdot}01$
d		d	d	
0·000362	+3,3	2·00	0·000373	+3,6
375	3,2	·04	387	3,6
388	3,0	·08	402	3,5
399	2,9	·12	415	3,3
411	2,9	·16	428	3,1
422	2,5	·20	440	3,0
0·000431	+2,4	2·24	0·000452	+2,9
441	2,4	·28	463	2,6
450	2,1	·32	473	2,4
458	1,9	·36	482	2,1
465	1,8	·40	490	1,9
0·000472	+1,5	2·44	0·000497	+1,6
477	1,1	·48	503	1,4
481	1,0	·52	508	1,3
485	0,8	·56	513	0,9
487	0,4	·60	515	0,5
0·000488	+0,2	2·64	0·000517	+0,5
489	+0,1	·68	519	0,0
489	−0,2	·72	517	−0,5
487	0,5	·76	515	0,5
485	0,8	·80	513	0,8
0·000481	−0,9	2·84	0·000509	−1,1
478	1,0	·88	504	1,4
473	1,5	·92	498	1,6
466	1,6	·96	491	1,9
460	1,8	3·00	483	2,1
0·000452	−2,1	3·04	0·000474	−2,3
443	2,4	·08	465	2,6
433	2,5	·12	453	2,9
423	2,6	·16	442	2,9
412	2,8	·20	430	3,1
0·000401	−2,9	3·24	0·000417	−3,4
389	3,0	·28	403	3,5
377	3,2	·32	389	3,5
363	3,3	·36	375	3,6
351	3,3	·40	360	3,9
0·000337	−3,4	3·44	0·000344	−4,0
324	3,4	·48	328	4,0
310	3,5	·52	312	3,9
296	3,5	·56	297	3,9
282	3,5	·60	281	4,1
0·000268	−3,5	3·64	0·000264	−4,0
254	3,5	·68	249	3,9
240	3,4	·72	233	3,9
227	3,3	·76	218	3,9
214	3,4	·80	202	3,8
0·000200	−3,3	3·84	0·000188	−3,5
188	3,0	·88	174	3,5
176	2,9	·92	160	3,3
165	2,6	·96	148	3,0
0·000155	−2,4	4·00	0·000136	−3,0

Applied Constant: $+0^d{\cdot}000290$.

SATELLITE III

Tables of the Phenomena

Equations of the Reduction

LIX

Ecl Oc	R	Sh Tr [3]
00005	00	0 000050
43	1	42
36	2	35
30	3	8
5	4	1
0	5	16
0 0 16	06	0 000011
13	7	8
11	8	6
11	9	5
11	10	6
0 000 13	11	0 00 9
16	2	1
21	3	16
26	4	2
31	5	8
0 000037	16	0 000035
44	7	43
51	8	51
58	9	59
0 00 064	20	0 000066

Ecl O	R	Sh Tr [3]
d 000064	20	0 000066
7	1	73
76	2	80
80	3	85
84	4	89
87	5	93
000089	26	0 000095
89	7	95
88	8	94
86	9	91
83	30	87
0 000080	31	0 000083
74	2	77
68	3	71
6	4	64
55	5	56
0 000048	36	0 000048
42	7	41
35	8	33
9	9	26
0 000024	40	0 000020

Appli d C t t + 005

LX

S	E O S T	S	E O S T
00	00001	40	d 0 000004
2	7	2	3
4	5	4	
6	3	6	2
8	2	8	3
10	2	50	4
12	0 000003	52	0 000007
4	4	4	10
6	7	6	13
8	10	8	16
20	13	60	17
22	0 000016	62	0 000018
4	17	4	18
6	18	6	17
8	18	8	15
30	17	70	13
32	0 000015	72	0 000010
4	1	4	7
6	9	6	4
8	6	8	3
40	0 000004	80	0 0 0002

A11ll d C t t +

LXI

D	E O S T	D	E O S T
00	d 0 000010	40	d 0 000007
2	1	2	6
4	13	4	5
6	14	6	4
8	15	8	3
10	16	50	
12	0 000017	52	0 000002
4	18	4	2
6	18	6	
8	18	8	2
20	18	60	3
22	0 00 18	62	0 000004
4	17	4	5
6	16	6	6
8	15	8	7
30	14	70	8
32	0 000 13	72	0 000010
4	1	4	12
6	10	6	13
8	8	8	14
40	0 000007	80	0 000015

Appli d C t t + 000

LXII

Ecl Oc	N	Sh Tr [3]
d 0 000004	1850	d 0 000036
	55	38
1	60	39
1	65	39
	70	38
3	75	37
0 000005	1880	0 000035
8	85	32
11	90	29
15	95	25
18	1900	22
0 000022	1905	0 000018
26	10	14
29	15	11
32	20	8
0 000033	1925	0 000007

Ecl Oc	N	Sh Tr [3]
d 0 000033	1925	d 0 000007
35	30	5
35	35	5
35	40	5
34	45	6
32	50	8
0 000029	1955	0 000011
6	60	14
3	65	17
19	70	21
16	75	24
0 000013	1980	0 00 027
10	85	30
7	90	33
6	95	34
0 000005	2000	0 000035

Appl d C t t +

SATELLITE III
Tables of the Phenomena

LXIII — Equation of the Reduction — Occultations

γ \ O	$0^{d}\cdot0$	$0^{d}\cdot2$	$0^{d}\cdot4$	$0^{d}\cdot6$	$0^{d}\cdot8$	$1^{d}\cdot0$	$1^{d}\cdot2$	$1^{d}\cdot4$	$1^{d}\cdot6$	$1^{d}\cdot8$	$2^{d}\cdot0$	$2^{d}\cdot2$	$2^{d}\cdot4$	$2^{d}\cdot6$	$2^{d}\cdot8$	$3^{d}\cdot0$	$3^{d}\cdot2$	$3^{d}\cdot4$	$3^{d}\cdot6$	$3^{d}\cdot8$	$4^{d}\cdot0$
d 0	+ 9	+ 8	+ 8	+ 7	+ 6	+ 5	+ 4	+ 3	+ 1	0	− 1	− 3	− 4	− 6	− 6	− 7	− 8	− 8	− 9	− 8	− 8
10	+ 54	+ 53	+ 50	+ 46	+ 41	+ 34	+ 26	+ 18	+ 8	− 1	− 10	− 19	− 27	− 35	− 42	− 47	− 51	− 53	− 54	− 53	− 50
20	+ 97	+ 95	+ 91	+ 83	+ 74	+ 62	+ 48	+ 32	+ 16	− 1	− 18	− 34	− 49	− 63	− 75	− 84	− 92	− 96	− 97	− 95	− 90
30	+ 137	+ 135	+ 129	+ 119	+ 105	+ 88	+ 68	+ 46	+ 23	− 2	− 26	− 48	− 71	− 89	− 107	− 121	− 130	− 136	− 137	− 135	− 129
40	+ 174	+ 172	+ 164	+ 150	+ 132	+ 111	+ 86	+ 58	+ 29	− 2	− 33	− 61	− 89	− 113	− 135	− 152	− 165	− 172	− 174	− 171	− 162
50	+ 206	+ 202	+ 193	+ 177	+ 156	+ 132	+ 101	+ 68	+ 35	− 2	− 39	− 72	− 105	− 134	− 159	− 180	− 195	− 203	− 206	− 202	− 191
60	+ 230	+ 227	+ 217	+ 200	+ 176	+ 148	+ 113	+ 76	+ 39	− 3	− 43	− 81	− 118	− 150	− 179	− 202	− 219	− 228	− 230	− 226	− 215
70	+ 249	+ 245	+ 234	+ 215	+ 190	+ 159	+ 122	+ 83	+ 42	− 3	− 46	− 88	− 127	− 162	− 193	− 218	− 236	− 246	− 249	− 245	− 232
80	+ 261	+ 257	+ 245	+ 225	+ 199	+ 167	+ 129	+ 87	+ 44	− 3	− 48	− 92	− 134	− 170	− 203	− 228	− 247	− 258	− 261	− 256	− 243
90	+ 264	+ 260	+ 248	+ 228	+ 201	+ 169	+ 130	+ 88	+ 44	− 3	− 49	− 93	− 135	− 172	− 205	− 231	− 250	− 261	− 264	− 259	− 246
100	+ 260	+ 256	+ 243	+ 225	+ 197	+ 166	+ 128	+ 86	+ 43	− 3	− 48	− 91	− 132	− 169	− 201	− 228	− 246	− 257	− 260	− 255	− 242
110	+ 248	+ 244	+ 233	+ 214	+ 189	+ 159	+ 122	+ 82	+ 41	− 3	− 46	− 87	− 127	− 162	− 192	− 217	− 235	− 245	− 248	− 243	− 231
120	+ 229	+ 225	+ 215	+ 197	+ 174	+ 146	+ 113	+ 77	+ 38	− 3	− 42	− 81	− 117	− 149	− 177	− 197	− 217	− 226	− 229	− 224	− 213
130	+ 202	+ 199	+ 190	+ 175	+ 155	+ 129	+ 100	+ 68	+ 33	− 2	− 37	− 72	− 103	− 132	− 158	− 175	− 192	− 200	− 202	− 199	− 189
140	+ 170	+ 167	+ 160	+ 147	+ 130	+ 109	+ 84	+ 57	+ 28	− 2	− 31	− 60	− 87	− 111	− 132	− 149	− 161	− 168	− 170	− 167	− 158
150	+ 134	+ 132	+ 126	+ 115	+ 102	+ 86	+ 65	+ 45	+ 22	− 1	− 25	− 47	− 68	− 87	− 104	− 117	− 127	− 132	− 134	− 131	− 125
160	+ 92	+ 91	+ 87	+ 80	+ 70	+ 59	+ 45	+ 31	+ 16	− 1	− 18	− 33	− 48	− 60	− 71	− 81	− 88	− 91	− 92	− 91	− 86
170	+ 48	+ 48	+ 46	+ 42	+ 37	+ 31	+ 24	+ 16	+ 9	− 1	− 9	− 17	− 25	− 32	− 37	− 43	− 46	− 48	− 48	− 48	− 45
180	+ 5	+ 5	+ 3	+ 3	+ 3	+ 2	+ 2	+ 1	+ 1	0	− 1	− 1	− 2	− 2	− 3	− 3	− 5	− 5	− 5	− 5	− 3
190	− 41	− 40	− 39	− 36	− 31	− 27	− 20	− 14	− 6	+ 1	+ 7	+ 15	+ 21	+ 27	+ 32	+ 36	+ 39	+ 40	+ 41	+ 40	+ 39
200	− 85	− 84	− 80	− 73	− 65	− 54	− 42	− 28	− 14	+ 1	+ 15	+ 30	+ 43	+ 55	+ 66	+ 74	+ 81	+ 84	+ 85	+ 84	+ 79
210	− 127	− 125	− 119	− 110	− 97	− 81	− 63	− 42	− 22	+ 1	+ 23	+ 45	+ 65	+ 83	+ 99	+ 111	+ 120	+ 125	+ 127	+ 124	+ 118
220	− 164	− 162	− 154	− 142	− 125	− 105	− 81	− 55	− 28	+ 2	+ 31	+ 58	+ 84	+ 107	+ 128	+ 144	+ 156	+ 163	+ 164	+ 162	+ 154
230	− 198	− 195	− 186	− 171	− 150	− 127	− 97	− 66	− 33	+ 2	+ 37	+ 69	+ 101	+ 129	+ 153	+ 173	+ 187	+ 196	+ 198	+ 194	+ 184
240	− 224	− 221	− 211	− 194	− 171	− 144	− 110	− 74	− 38	+ 3	+ 42	+ 79	+ 115	+ 146	+ 175	+ 197	+ 212	+ 222	+ 224	+ 220	+ 209
250	− 245	− 242	− 230	− 212	− 187	− 157	− 120	− 82	− 41	+ 3	+ 46	+ 87	+ 125	+ 159	+ 190	+ 215	+ 232	+ 243	+ 245	+ 241	+ 229
260	− 258	− 254	− 242	− 223	− 197	− 166	− 128	− 86	− 43	+ 3	+ 48	+ 91	+ 132	+ 169	+ 201	+ 226	+ 244	+ 255	+ 258	+ 254	+ 240
270	− 264	− 260	− 248	− 228	− 201	− 169	− 130	− 88	− 44	+ 3	+ 49	+ 93	+ 135	+ 172	+ 205	+ 231	+ 250	+ 261	+ 264	+ 259	+ 246
280	− 261	− 257	− 245	− 225	− 199	− 167	− 129	− 87	− 44	+ 3	+ 48	+ 92	+ 134	+ 170	+ 203	+ 228	+ 247	+ 258	+ 261	+ 256	+ 243
290	− 252	− 248	− 236	− 217	− 192	− 161	− 123	− 84	− 42	+ 3	+ 47	+ 88	+ 129	+ 164	+ 196	+ 220	+ 238	+ 249	+ 252	+ 247	+ 234
300	− 235	− 230	− 219	− 202	− 178	− 150	− 116	− 79	− 39	+ 3	+ 43	+ 83	+ 120	+ 153	+ 182	+ 203	+ 221	+ 231	+ 235	+ 229	+ 218
310	− 210	− 207	− 197	− 182	− 160	− 134	− 103	− 70	− 35	+ 2	+ 39	+ 74	+ 107	+ 137	+ 164	+ 184	+ 199	+ 208	+ 210	+ 206	+ 196
320	− 179	− 176	− 168	− 155	− 137	− 115	− 88	− 60	− 29	+ 2	+ 33	+ 63	+ 91	+ 117	+ 139	+ 157	+ 170	+ 177	+ 179	+ 176	+ 167
330	− 144	− 142	− 135	− 124	− 109	− 92	− 70	− 48	− 23	+ 2	+ 26	+ 51	+ 73	+ 94	+ 111	+ 125	+ 137	+ 142	+ 144	+ 141	+ 133
340	− 104	− 102	− 97	− 90	− 79	− 66	− 52	− 35	− 18	+ 1	+ 20	+ 36	+ 53	+ 68	+ 80	+ 91	+ 98	+ 102	+ 104	+ 102	+ 97
350	− 60	− 59	− 57	− 52	− 45	− 39	− 30	− 20	− 10	+ 1	+ 12	+ 21	+ 31	+ 39	+ 46	+ 53	+ 57	+ 59	+ 60	+ 59	+ 56
360	− 15	− 15	− 15	− 14	− 11	− 10	− 8	− 5	− 1	0	+ 3	+ 5	+ 8	+ 10	+ 13	+ 14	+ 15	+ 15	+ 15	+ 15	+ 15
370	+ 30	+ 30	+ 28	+ 26	+ 23	+ 19	+ 14	+ 10	+ 5	0	− 5	− 11	− 15	− 20	− 23	− 26	− 28	− 30	− 30	− 29	− 28
380	+ 74	+ 73	+ 69	+ 64	+ 57	+ 47	+ 36	+ 25	+ 12	− 1	− 13	− 26	− 37	− 48	− 58	− 64	− 70	− 73	− 74	− 74	− 69
390	+ 117	+ 115	+ 109	+ 101	+ 89	+ 74	+ 58	+ 39	+ 20	− 1	− 21	− 41	− 60	− 76	− 91	− 102	− 110	− 115	− 116	− 114	− 108
400	+ 155	+ 153	+ 146	+ 134	+ 118	+ 99	+ 77	+ 52	+ 26	− 2	− 29	− 55	− 80	− 101	− 120	− 136	− 148	− 154	− 155	− 153	− 145

No Constant has been applied. The unit equals $0^{d}\cdot000001$. This equation applies for Occultations only. Its natural sign must be regarded.

LXIII *continued* — **Equation of the Reduction** — **Occultations**

γ \ O	4d 0	4d 2	4d 4	4d 6	4d 8	5d 0	5d 2	5l 4	5d 6	5d 8	6d 0	6d 2	6d 4	6d 6	6d 8	7d 0	7d 2	7d 4	7d 6	7d 8	8d 0
0	− 8	− 7	− 6	− 5	− 4	− 3	− 1	0	+ 1	+ 3	+ 4	+ 6	+ 6	+ 7	+ 8	+ 9	+ 9	+ 8	+ 8	+ 7	+ 6
10	− 50	− 45	− 41	− 33	− 5	− 17	− 8	+	+ 11	+ 0	+ 8	+ 36	+ 42	+ 47	+ 51	+ 53	+ 54	+ 52	+ 49	+ 45	+ 40
20	− 90	− 8	− 73	− 6	− 47	− 30	− 14	+ 3	+ 19	+ 36	+ 51	+ 65	+ 77	+ 85	+ 92	+ 96	+ 97	+ 95	+ 89	+ 81	+ 71
30	− 1 9	− 117	− 1 3	− 85	− 66	− 43	− 0	+ 4	+ 8	+ 51	+ 73	+ 9	+ 108	+ 122	+ 13	+ 136	+ 137	+ 134	+ 1 8	+ 116	+ 101
40	− 6	− 148	− 13	− 108	− 83	− 54	− 5	+ 5	+ 35	+ 64	+ 93	+ 116	+ 137	+ 154	+ 166	+ 173	+ 174	+ 170	+ 161	+ 147	+ 128
50	− 191	− 175	− 154	− 1 8	− 98	− 64	− 30	+ 6	+ 42	+ 76	+ 109	+ 138	+ 161	+ 181	+ 195	+ 204	+ 206	+ 201	+ 190	+ 173	+ 151
60	− 215	− 97	− 173	− 143	− 110	− 73	− 33	+ 7	+ 48	+ 85	+ 1	+ 155	+ 182	+ 204	+ 220	+ 229	+ 230	+ 26	+ 214	+ 195	+ 170
70	− 32	− 212	− 187	− 154	− 119	− 79	− 36	+ 8	+ 51	+ 93	+ 132	+ 167	+ 196	+ 20	+ 237	+ 247	+ 249	+ 244	+ 230	+ 10	+ 183
80	− 43	− 3	− 196	− 16	− 125	− 82	− 38	+ 8	+ 53	+ 97	+ 138	+ 175	+ 205	+ 230	+ 248	+ 259	+ 261	+ 255	+ 241	+ 221	+ 192
90	− 46	− 25	− 198	− 164	− 126	− 83	− 38	+ 8	+ 54	+ 98	+ 140	+ 177	+ 208	+ 33	+ 251	+ 62	+ 264	+ 58	+ 244	+ 223	+ 194
100	− 4	−	− 194	− 161	− 124	− 81	− 37	+ 8	+ 53	+ 96	+ 137	+ 174	+ 04	+ 230	+ 247	+ 258	+ 260	+ 254	+ 40	+ 220	+ 190
110	− 31	− 211	− 186	− 154	− 119	− 78	− 35	+ 7	+ 50	+ 9	+ 132	+ 166	+ 195	+ 219	+ 235	+ 246	+ 48	+ 42	+ 229	+ 209	+ 182
120	− 13	− 194	− 171	− 142	− 1 9	− 7	− 33	+ 7	+ 46	+ 85	+ 1 1	+ 153	+ 180	+ 2 1	+ 218	+ 227	+ 229	+ 224	+ 212	+ 193	+ 168
130	− 189	− 173	− 15	− 125	− 97	− 64	− 9	+ 6	+ 41	+ 75	+ 107	+ 135	160	+ 179	+ 193	+ 01	+ 202	+ 198	+ 187	+ 171	+ 149
140	− 158	− 145	− 1 8	− 1 6	− 81	− 54	− 4	+ 5	+ 34	+ 63	+ 9	+ 115	+ 134	+ 150	+ 162	+ 169	+ 170	+ 166	+ 157	+ 144	+ 125
150	− 1 5	− 114	− 10	− 83	− 63	− 42	− 19	+ 4	+ 28	+ 50	+ 70	+ 90	+ 105	+ 118	+ 127	+ 133	+ 134	+ 131	+ 1 4	+ 113	+ 98
160	− 86	− 79	− 69	− 58	− 44	− 29	− 13	+ 3	+ 19	+ 34	+ 49	+ 6	+ 73	+ 82	+ 88	+ 92	+ 92	+ 90	+ 86	+ 79	+ 68
170	− 45	− 4	− 36	− 30	− 4	− 15	− 7	+ 1	+ 10	+ 18	+ 6	+ 3	+ 39	+ 43	+ 46	+ 48	+ 48	+ 47	+ 45	+ 41	+ 35
180	− 3	− 3	− 3	− 2	− 2	− 1			+ 1	+ 1	+ 2	+ 2	+ 3	+ 3	+ 5	+ 5	+ 5	+ 5	+ 3	+ 3	+ 3
190	+ 39	+ 35	+ 31	+ 26	+ 19	+ 13	+ 6	− 1	− 8	− 16	−	− 28	− 32	− 37	− 39	− 41	− 41	− 40	− 38	− 35	− 30
200	+ 79	+ 7	+ 64	+ 53	+ 41	+ 27	+ 13	− 3	− 17	− 32	− 45	− 57	− 67	− 75	− 81	− 85	− 85	− 83	− 78	− 71	− 63
210	+ 118	+ 1 9	+ 97	+ 79	+ 61	+ 40	+ 19	− 4	− 26	− 47	− 67	− 85	− 100	− 112	− 1 0	− 126	− 127	− 1 4	− 117	− 108	− 93
220	+ 154	+ 140	+ 1 3	+ 10	+ 77	+ 5	+ 24	− 5	− 33	61	− 88	− 110	− 130	− 145	− 157	− 164	− 164	− 161	− 15	− 139	− 1 1
230	+ 184	+ 168	+ 148	+ 1 3	+ 92	+ 62	+ 9	− 6	− 40	− 73	− 105	− 133	− 155	− 174	− 188	− 196	− 198	− 193	− 183	− 167	− 145
240	+ 9	+ 19	+ 169	+ 140	+ 107	+ 7	+ 33	− 7	− 46	− 83	− 119	− 151	− 177	− 199	− 213	− 223	− 224	− 219	− 206	− 190	− 165
250	+ 29	+ 209	+ 184	+ 15	+ 117	+ 77	+ 35	− 7	− 50	− 91	− 130	− 164	− 193	− 15	− 233	− 243	− 245	− 40	− 227	− 207	− 180
260	+ 240	+ 2	+ 194	+ 161	+ 124	+ 81	+ 37	− 8	− 53	− 96	− 137	− 174	− 04	− 28	− 245	− 256	− 258	− 25	− 238	− 218	− 190
270	+ 46	+ 5	+ 198	+ 164	+ 126	+ 83	+ 38	− 8	− 54	− 98	− 140	− 177	− 208	− 33	− 251	− 262	− 64	− 258	− 44	− 223	− 194
280	+ 43	+ 3	+ 196	+ 162	+ 1 5	+ 8	+ 38	− 8	− 53	− 97	− 138	− 175	− 06	− 230	− 248	− 259	− 261	− 255	− 41	− 21	− 19
290	+ 34	+ 215	+ 189	+ 157	+ 1 0	+ 79	+ 36	− 8	− 51	− 93	− 133	− 169	− 198	− 22	− 239	− 250	− 52	− 246	− 233	− 213	− 185
300	+ 18	+ 199	+ 175	+ 145	+ 11	+ 73	+ 33	− 7	− 48	− 87	− 1 4	− 157	− 184	− 206	−	− 233	− 35	− 228	− 216	− 197	− 172
310	+ 196	+ 179	+ 157	+ 13	+ 100	+ 66	+ 30	− 6	− 43	− 78	− 111	− 14	− 166	− 186	− 00	− 208	− 210	− 205	− 194	− 178	− 154
320	+ 167	+ 153	+ 135	+ 111	+ 85	+ 57	+ 25	− 5	− 36	67	− 95	− 1 1	− 141	158	− 170	− 178	− 179	− 175	− 165	− 151	− 13
330	+ 133	+ 1	+ 1 8	+ 90	+ 68	+ 45	+ 20	− 4	− 3	− 53	− 76	− 97	− 113	− 1 6	− 137	143	− 144	− 141	− 13	− 121	− 106
340	+ 97	+ 89	+ 77	+ 64	+ 49	+ 33	+ 14	− 3	−	− 38	− 55	− 69	− 81	− 92	− 99	− 103	− 104	− 101	− 96	− 88	− 76
350	+ 56	+ 52	+ 45	+ 37	+ 28	+ 19	+ 8	−	− 13	− 22	− 3	− 4	− 47	− 53	− 57	− 60	− 60	− 59	− 56	− 51	− 44
360	+ 15	+ 14	+ 11	+ 10	+ 8	+ 5	+ 2	0	− 4	− 6	− 9	− 10	− 13	− 14	− 15	− 15	− 15	− 15	− 14	− 13	− 11
370	− 28	− 5	− 3	− 19	− 14	− 9	− 5	+ 1	+ 6	+ 11	+ 16	+ 20	+ 23	+ 26	+ 28	+ 3	+ 3	+ 29	+ 28	+ 5	+ 22
380	− 69	− 63	− 56	− 46	− 36	− 23	− 11	+ 2	+ 15	+ 8	+ 39	+ 50	+ 59	+ 65	+ 70	+ 74	+ 74	+ 72	+ 68	+ 6	+ 55
390	− 108	− 1	− 87	− 7	− 56	− 37	− 17	+ 4	+ 3	+ 43	+ 61	+ 78	+ 92	+ 10	+ 110	+ 115	+ 116	+ 114	+ 107	+ 99	+ 86
400	− 145	133	− 116	− 96	− 74	− 49	− 23	+ 5	+ 31	+ 58	+ 83	+ 1 4	+ 1 2	+ 137	+ 148	+ 154	+ 155	+ 152	+ 144	+ 131	+ 114

N C t th b dd d Th t q l ooooo Th q ti ppli f O lt t ly It t al ig m tb g d d

SATELLITE III

Tables of the Phenomena

LXIV

Equation of the Reduction

Transits

γ \ O	$0^{d}.0$	$0^{d}.2$	$0^{d}.4$	$0^{d}.6$	$0^{d}.8$	$1^{d}.0$	$1^{d}.2$	$1^{d}.4$	$1^{d}.6$	$1^{d}.8$	$2^{d}.0$	$2^{d}.2$	$2^{d}.4$	$2^{d}.6$	$2^{d}.8$	$3^{d}.0$	$3^{d}.2$	$3^{d}.4$	$3^{d}.6$	$3^{d}.8$	$4^{d}.0$
d																					
0	− 11	− 11	− 10	− 9	− 9	− 7	− 5	− 4	− 2	0	+ 2	+ 4	+ 6	+ 7	+ 9	+ 9	+ 10	+ 11	+ 11	+ 11	+ 10
10	− 70	− 69	− 66	− 60	− 54	− 44	− 35	− 24	− 11	+ 1	+ 13	+ 25	+ 36	+ 45	+ 55	+ 61	+ 66	+ 69	+ 70	+ 69	+ 65
20	− 126	− 125	− 118	− 110	− 96	− 81	− 62	− 42	− 21	+ 1	+ 23	+ 45	+ 65	+ 82	+ 98	+ 111	+ 119	+ 125	+ 126	+ 124	+ 118
30	− 180	− 178	− 169	− 155	− 137	− 115	− 88	− 60	− 29	+ 2	+ 33	+ 64	+ 92	+ 117	+ 139	+ 157	+ 170	+ 178	+ 180	+ 176	+ 168
40	− 227	− 224	− 213	− 196	− 174	− 145	− 112	− 76	− 37	+ 2	+ 42	+ 80	+ 116	+ 148	+ 176	+ 199	+ 215	+ 225	+ 227	+ 223	+ 212
50	− 268	− 264	− 253	− 232	− 205	− 171	− 133	− 89	− 45	+ 2	+ 50	+ 95	+ 138	+ 175	+ 209	+ 235	+ 254	+ 265	+ 268	+ 263	+ 251
60	− 302	− 297	− 283	− 260	− 229	− 193	− 149	− 100	− 50	+ 3	+ 56	+ 106	+ 155	+ 197	+ 234	+ 264	+ 285	+ 298	+ 302	+ 295	+ 281
70	− 326	− 321	− 306	− 282	− 248	− 208	− 160	− 109	− 54	+ 3	+ 61	+ 116	+ 167	+ 212	+ 253	+ 285	+ 308	+ 322	+ 326	+ 319	+ 304
80	− 340	− 335	− 319	− 294	− 260	− 218	− 168	− 114	− 56	+ 3	+ 63	+ 121	+ 175	+ 223	+ 264	+ 298	+ 321	+ 336	+ 340	+ 333	+ 317
90	− 345	− 340	− 324	− 298	− 263	− 220	− 170	− 115	− 57	+ 3	+ 64	+ 122	+ 177	+ 225	+ 268	+ 302	+ 326	+ 341	+ 345	+ 338	+ 322
100	− 339	− 335	− 319	− 293	− 259	− 217	− 167	− 113	− 56	+ 3	+ 63	+ 120	+ 174	+ 222	+ 264	+ 297	+ 321	+ 336	+ 339	+ 333	+ 317
110	− 324	− 319	− 304	− 279	− 247	− 206	− 160	− 108	− 53	+ 3	+ 60	+ 115	+ 166	+ 211	+ 251	+ 283	+ 305	+ 319	+ 323	+ 317	+ 302
120	− 298	− 294	− 280	− 258	− 228	− 190	− 147	− 100	− 49	+ 3	+ 55	+ 108	+ 153	+ 194	+ 232	+ 261	+ 282	+ 295	+ 298	+ 292	+ 279
130	− 265	− 261	− 249	− 228	− 202	− 169	− 130	− 88	− 43	+ 2	+ 50	+ 94	+ 135	+ 173	+ 205	+ 231	+ 250	+ 262	+ 265	+ 260	+ 247
140	− 222	− 219	− 209	− 192	− 169	− 142	− 110	− 74	− 37	+ 2	+ 42	+ 79	+ 115	+ 145	+ 172	+ 195	+ 210	+ 220	+ 222	+ 218	+ 208
150	− 175	− 173	− 164	− 151	− 133	− 111	− 86	− 58	− 29	+ 2	+ 33	+ 62	+ 90	+ 114	+ 136	+ 153	+ 165	+ 173	+ 175	+ 172	+ 163
160	− 121	− 119	− 114	− 104	− 92	− 78	− 60	− 40	− 20	+ 1	+ 23	+ 42	+ 62	+ 79	+ 94	+ 105	+ 115	+ 120	+ 121	+ 119	+ 113
170	− 63	− 62	− 60	− 55	− 48	− 41	− 31	− 21	− 11	+ 1	+ 12	+ 22	+ 32	+ 42	+ 49	+ 56	+ 60	+ 63	+ 63	+ 62	+ 59
180	− 6	− 6	− 6	− 5	− 5	− 3	− 2	− 2	− 1	0	+ 1	+ 2	+ 2	+ 3	+ 5	+ 5	+ 6	+ 6	+ 6	+ 6	+ 6
190	+ 54	+ 53	+ 50	+ 47	+ 41	+ 34	+ 27	+ 18	+ 9	− 1	− 10	− 19	− 28	− 35	− 42	− 47	− 50	− 53	− 54	− 52	− 50
200	+ 111	+ 110	+ 104	+ 97	+ 85	+ 70	+ 55	+ 37	+ 18	− 1	− 20	− 40	− 57	− 72	− 87	− 98	− 105	− 110	− 111	− 109	− 104
210	+ 166	+ 163	+ 156	+ 144	+ 126	+ 106	+ 82	+ 56	+ 27	− 1	− 30	− 59	− 85	− 109	− 129	− 146	− 157	− 164	− 166	− 162	− 155
220	+ 215	+ 212	+ 202	+ 186	+ 164	+ 137	+ 106	+ 72	+ 35	− 2	− 40	− 76	− 110	− 140	− 167	− 188	− 203	− 213	− 215	− 211	− 201
230	+ 258	+ 254	+ 242	+ 224	+ 197	+ 165	+ 128	+ 86	+ 43	− 2	− 47	− 91	− 133	− 168	− 201	− 227	− 244	− 255	− 258	− 253	− 241
240	+ 294	+ 289	+ 276	+ 253	+ 223	+ 188	+ 145	+ 98	+ 49	− 3	− 55	− 104	− 151	− 192	− 228	− 257	− 277	− 290	− 294	− 288	− 274
250	+ 320	+ 316	+ 301	+ 277	+ 244	+ 204	+ 158	+ 106	+ 53	− 3	− 60	− 113	− 164	− 209	− 249	− 281	− 303	− 317	− 321	− 314	− 299
260	+ 337	+ 333	+ 317	+ 291	+ 257	+ 215	+ 167	+ 113	+ 56	− 3	− 63	− 120	− 174	− 220	− 262	− 295	− 319	− 334	− 337	− 331	− 315
270	+ 345	+ 340	+ 324	+ 298	+ 263	+ 220	+ 170	+ 115	+ 57	− 3	− 64	− 122	− 177	− 225	− 268	− 302	− 326	− 341	− 345	− 338	− 322
280	+ 342	+ 337	+ 321	+ 296	+ 260	+ 218	+ 168	+ 114	+ 56	− 3	− 63	− 121	− 175	− 223	− 265	− 300	− 323	− 338	− 342	− 335	− 319
290	+ 328	+ 324	+ 308	+ 284	+ 251	+ 210	+ 162	+ 109	+ 54	− 3	− 62	− 116	− 169	− 215	− 255	− 288	− 310	− 325	− 328	− 322	− 307
300	+ 306	+ 302	+ 287	+ 265	+ 234	+ 195	+ 151	+ 102	+ 50	− 3	− 56	− 108	− 157	− 199	− 238	− 268	− 289	− 302	− 306	− 300	− 286
310	+ 275	+ 271	+ 257	+ 237	+ 209	+ 175	+ 135	+ 92	+ 45	− 2	− 50	− 97	− 140	− 179	− 213	− 240	− 259	− 272	− 275	− 269	− 256
320	+ 234	+ 231	+ 220	+ 203	+ 178	+ 149	+ 116	+ 78	+ 39	− 2	− 44	− 83	− 121	− 153	− 182	− 205	− 221	− 231	− 234	− 229	− 219
330	+ 187	+ 185	+ 176	+ 162	+ 143	+ 119	+ 93	+ 62	+ 31	− 2	− 35	− 66	− 97	− 122	− 146	− 164	− 177	− 185	− 187	− 183	− 175
340	+ 135	+ 134	+ 127	+ 117	+ 103	+ 87	+ 67	+ 45	+ 23	− 1	− 25	− 47	− 69	− 89	− 105	− 118	− 128	− 134	− 135	− 133	− 127
350	+ 79	+ 77	+ 74	+ 68	+ 60	+ 51	+ 39	+ 26	+ 13	− 1	− 15	− 27	− 40	− 52	− 61	− 69	− 74	− 78	− 79	− 77	− 74
360	+ 20	+ 20	+ 19	+ 18	+ 15	+ 13	+ 10	+ 6	+ 4	0	− 4	− 8	− 10	− 14	− 15	− 18	− 19	− 20	− 20	− 20	− 19
370	− 39	− 39	− 37	− 33	− 30	− 25	− 19	− 13	− 6	0	+ 7	+ 14	+ 20	+ 25	+ 31	+ 34	+ 37	+ 39	+ 39	+ 38	+ 36
380	− 97	− 95	− 91	− 84	− 74	− 61	− 48	− 33	− 16	+ 1	+ 18	+ 35	+ 50	+ 63	+ 75	+ 84	+ 91	+ 96	+ 97	+ 95	+ 90
390	− 152	− 150	− 142	− 132	− 116	− 97	− 75	− 51	− 25	+ 1	+ 28	+ 54	+ 78	+ 100	+ 118	+ 134	+ 143	+ 150	+ 152	+ 149	+ 142
400	− 203	− 200	− 191	− 175	− 154	− 130	− 100	− 68	− 33	+ 2	+ 37	+ 72	+ 104	+ 133	+ 157	+ 178	+ 192	+ 201	+ 203	+ 199	+ 190

No Constant has been added. The unit equals $0^{d}.000001$. This equation applies for Transits only. Its natural sign must be regarded.

SATELLITE III

Tables of the Phenomena

LXIV *continued* — **Equation of the Reduction** — **Transits**

O / γ	4^d0	4^d2	4^d4	4^d6	4^d8	5^d0	5^d2	5^d4	5^d6	5^d8	6^d0	6^d2	6^d4	6^d6	6^d8	7^d0	7^d2	7^d4	7^d6	7^d8	8^d0
0	+ 10	+ 9	+ 8	+ 6	+ 5	+ 4	+ 1	0	− 2	− 3	− 6	− 7	− 9	− 9	− 10	− 11	− 11	− 11	− 10	− 9	− 8
10	+ 65	+ 59	+ 53	+ 43	+ 33	+	+ 10	−	− 14	− 26	37	− 47	− 55	62	− 67	− 70	− 70	− 68	− 65	− 59	− 52
20	+ 118	+ 109	+ 95	+ 79	+ 60	+ 40	+ 18	− 4	− 26	− 48	− 67	− 84	100	− 11	− 1 0	− 1 5	− 126	− 1 3	− 117	− 107	− 93
30	+ 168	+ 156	+ 135	+ 112	+ 85	+ 57	+ 6	− 6	− 37	− 67	− 95	− 1 1	− 141	− 159	− 171	− 179	− 18	− 176	− 166	− 152	− 13
40	+ 21	+ 194	+ 171	+ 142	+ 1 8	+ 7	+ 33	− 7	− 46	85	− 1	− 152	− 179	− 01	− 216	− 5	− 227	− 2	− 1	− 191	− 168
50	+ 51	+ 3	+ 02	+ 167	+ 128	+ 85	+ 39	− 9	− 55	− 101	− 143	180	− 12	− 38	− 256	− 266	− 268	− 26	− 249	− 227	− 198
60	+ 281	+ 58	+ 6	+ 188	+ 143	+ 95	+ 44	− 10	− 6	− 113	− 160	− 0	− 37	− 66	− 287	− 299	− 302	− 295	− 79	− 254	− 3
70	+ 304	+ 79	+ 245	+ 03	+ 154	+ 103	+ 47	− 1	− 67	− 1 1	− 172	− 218	− 57	− 88	− 310	− 323	− 326	− 318	− 301	− 275	− 240
80	+ 317	+ 91	+ 256	+ 13	+ 162	+ 108	+ 49	− 11	− 70	128	− 181	− 228	− 268	− 301	− 323	− 337	− 340	− 332	− 314	− 287	− 251
90	+ 32	+ 95	+ 59	+ 15	+ 164	+ 1 9	+ 50	− 11	− 71	− 1 9	− 183	− 31	− 7	− 305	− 328	− 342	− 345	337	− 319	− 291	− 254
100	+ 317	+ 90	+ 255	+ 1	+ 161	+ 107	+ 49	− 11	− 70	− 1 7	− 180	− 28	− 68	− 300	− 323	− 337	− 339	− 332	− 314	− 286	− 250
110	+ 3	+ 77	+ 43	+ 20	+ 154	+ 10	+ 47	− 10	− 66	− 121	− 17	− 17	55	− 86	307	320	323	− 316	− 99	− 273	− 238
120	+ 79	+ 55	+ 24	+ 186	+ 14	+ 95	+ 43	− 9	− 61	− 112	− 158	− 199	− 235	− 264	− 284	− 296	− 298	− 291	− 276	− 252	− 220
130	+ 47	+ 26	+ 199	+ 165	+ 1 5	+ 84	+ 38	− 8	− 55	− 99	140	− 177	− 208	− 33	− 251	− 63	− 65	− 259	− 245	− 23	− 195
140	+ 08	+ 191	+ 167	+ 139	+ 1 6	+ 70	+ 32	− 7	− 46	− 83	− 118	− 149	− 176	− 197	− 212	− 221	− 22	− 217	− 06	− 188	− 164
150	+ 163	+ 149	+ 131	+ 109	+ 83	+ 55	+ 26	− 5	− 36	− 65	− 93	117	− 138	− 154	− 166	174	− 175	− 171	− 161	− 147	− 1 9
160	+ 113	+ 103	+ 91	+ 75	+ 58	+ 38	+ 18	− 4	− 25	− 45	− 64	− 81	− 95	− 107	− 115	− 120	− 121	− 118	112	− 10	− 89
170	+ 59	+ 55	+ 48	+ 4	+ 30	+ 0	+ 10	−	− 13	− 24	− 33	− 43	50	− 56	− 60	− 63	− 63	− 6	− 59	− 54	− 47
180	+ 6	+ 5	+ 5	+ 3	+	+ 2	+ 1	0	1	−	3	− 3	− 5	− 5	− 6	− 6	− 6	− 6	− 5	− 5	− 5
190	− 50	− 46	− 40	− 34	6	− 17	− 8	+	+ 11	+ 0	+ 8	+ 36	+ 4	+ 48	+ 51	+ 53	+ 54	+ 53	+ 50	+ 45	+ 39
200	− 104	− 96	84	− 70	− 53	− 35	− 16	+ 4	+ 23	+ 42	+ 59	+ 74	+ 88	+ 98	+ 106	+ 110	+ 111	+ 109	+ 103	+ 94	+ 82
210	− 155	− 14	− 1 5	− 104	− 79	− 53	− 4	+ 5	+ 34	+ 62	+ 88	+ 111	+ 131	+ 147	+ 157	+ 164	+ 166	+ 162	+ 154	+ 140	+ 12
220	− 1	− 184	− 16	− 134	102	− 68	− 32	+ 7	+ 44	+ 81	+ 114	+ 144	+ 169	+ 190	+ 05	+ 213	+ 215	+ 210	+ 199	+ 181	+ 159
230	− 41	− 21	− 194	− 161	− 123	− 8	38	+ 8	+ 53	+ 97	+ 138	+ 173	+ 204	+ 229	+ 245	+ 56	+ 258	+ 252	+ 238	+ 218	+ 190
240	− 74	− 51	− 2 0	− 183	− 140	− 9	− 43	+ 9	+ 61	+ 110	+ 156	+ 197	+ 231	+ 259	+ 279	+ 91	+ 294	+ 287	+ 71	+ 247	+ 16
250	− 99	− 74	− 41	− 00	− 15	− 101	− 47	+ 10	+ 66	+ 119	+ 170	+ 215	+ 253	+ 284	+ 305	+ 318	+ 321	+ 313	+ 97	+ 271	+ 236
260	− 315	− 288	− 253	− 10	− 161	− 107	− 49	+ 11	+ 7	+ 127	+ 180	+ 226	+ 66	+ 298	+ 321	+ 335	+ 337	+ 330	+ 312	+ 284	+ 248
270	− 3 2	− 95	− 259	− 215	− 164	− 109	− 50	+ 11	+ 71	+ 129	+ 183	+ 231	+ 272	+ 305	+ 328	+ 342	+ 345	+ 337	+ 319	+ 91	+ 54
280	− 319	− 293	− 256	− 13	− 162	− 108	− 49	+ 11	+ 70	+ 128	+ 181	+ 228	+ 269	+ 303	+ 325	+ 339	+ 342	+ 334	+ 316	+ 288	+ 51
290	− 30	− 281	− 47	− 05	− 157	− 1 3	− 47	+ 10	+ 67	+ 122	+ 175	+ 220	+ 259	+ 90	+ 312	+ 3 6	+ 328	+ 321	+ 304	+ 277	+ 42
300	− 86	− 262	− 29	− 190	− 145	− 97	− 44	+ 10	+ 63	+ 115	+ 162	+ 205	+ 42	+ 271	+ 291	+ 303	+ 306	+ 299	+ 83	+ 58	+ 2 5
310	− 56	− 234	− 06	− 171	− 130	− 87	− 39	+ 9	+ 57	+ 103	+ 145	+ 184	+ 16	+ 242	+ 260	+ 72	+ 75	+ 269	+ 253	+ 231	+ 2 2
320	− 19	− 01	− 176	− 146	− 111	− 74	− 34	+ 7	+ 49	+ 87	+ 1 5	+ 157	+ 184	+ 207	+ 2 3	+ 232	+ 234	+ 2 9	+ 217	+ 198	+ 17
330	175	− 161	141	− 117	− 90	− 59	− 8	+ 6	+ 39	+ 70	+ 100	+ 125	+ 148	+ 166	+ 178	+ 186	+ 187	+ 183	+ 173	+ 158	+ 137
340	− 1 7	− 115	− 1 2	− 84	− 64	− 43	− 2	+ 4	+ 8	+ 50	+ 7	+ 91	+ 1 7	+ 119	+ 129	+ 134	+ 135	+ 132	+ 1 6	+ 114	+ 100
350	− 74	− 68	− 59	− 49	− 37	− 25	− 12	+ 2	+ 16	+ 3	+ 42	+ 53	+ 6	+ 70	+ 75	+ 78	+ 79	+ 77	+ 73	+ 66	+ 58
360	− 19	− 18	− 15	− 13	− 10	− 6	3	+ 1	+ 4	+ 8	+ 11	+ 14	+ 16	+ 18	+ 19	+ 20	+ 0	+ 20	+ 19	+ 18	+ 15
370	+ 36	+ 33	+ 29	+ 24	+ 19	+ 13	+ 5	1	− 8	− 14	− 1	− 6	− 31	− 34	− 37	− 39	− 39	− 38	− 36	− 33	− 9
380	+ 90	+ 83	+ 73	+ 60	+ 46	+ 31	+ 13	− 3	− 0	− 36	− 51	− 64	− 76	− 85	− 92	− 96	− 97	− 94	− 89	− 82	− 71
390	+ 142	+ 130	+ 114	+ 95	+ 72	+ 48	+ 2	− 5	− 31	− 57	− 81	− 10	− 120	− 135	− 144	− 151	− 152	− 148	− 141	− 129	− 11
400	+ 190	+ 173	+ 15	+ 1 7	+ 96	+ 64	+ 30	7	− 41	− 76	− 107	− 136	− 160	− 179	− 193	− 02	− 03	− 199	− 188	− 171	− 150

N C t th b dd d Th it q l oooo Th q ti ppli f T it ly It t l gnm tb ga d d

SATELLITE III
Tables of the Phenomena

LXV — Corrections for Phase — Sh., Tr.

1	2	3	4	5	6
Additional Equation of Semi-duration.	p	Correcting Factor for Semi-duration.	Δ $0^{d}\cdot001$	Correcting Factor for Reduction.	Δ $0^{d}\cdot001$
d	d				
0·000000	**0·000**	·00000	0,0	·00000	0,0
0	**·004**	− 1	− 0,3	0	0,0
0	**·008**	2	0,5	− 1	− 0,1
0	**·012**	5	1,0	1	0,1
0	**·016**	10	1,3	2	0,3
0	**·020**	15	1,6	3	0,3
0·000000	**0·024**	− ·00023	− 2,0	− ·00004	− 0,4
0	**·028**	31	2,1	6	0,5
0	**·032**	40	2,4	8	0,5
0	**·036**	50	2,8	10	0,5
0	**·040**	62	3,1	12	0,6
0·000000	**0·044**	− ·00075	− 3,4	− ·00015	− 0,7
0	**·048**	89	3,6	18	0,8
0	**·052**	104	4,0	21	0,8
0	**·056**	121	4,4	24	0,9
0	**·060**	139	4,8	28	1,0
0·000000	**0·064**	− ·00159	− 5,0	− ·00032	− 1,0
0	**·068**	179	5,1	36	1,0
0	**·072**	200	5,5	40	1,1
0	**·076**	223	5,9	45	1,3
0	**·080**	247	6,1	50	1,3
0·000001	**0·084**	− ·00272	− 6,4	− ·00055	− 1,3
1	**·088**	298	6,8	60	1,4
1	**·092**	326	7,1	66	1,4
1	**·096**	355	7,5	71	1,5
1	**·100**	386	7,8	78	1,6
0·000001	**0·104**	− ·00417	− 8,1	− ·00084	− 1,6
1	**·108**	451	8,4	91	1,6
1	**·112**	484	8,5	97	1,6
1	**·116**	519	8,9	104	1,9
1	**·120**	555	9,3	112	1,9
0·000001	**0·124**	− ·00593	− 9,6	− ·00119	− 1,9

1	2	3	4	5	6
Additional Equation of Semi-duration.	p	Correcting Factor for Semi-duration.	Δ $0^{d}\cdot001$	Correcting Factor for Reduction.	Δ $0^{d}\cdot001$
	d				
0·000001	**0·128**	− ·00632	− 9,8	− ·00127	− 2,0
1	**·132**	671	10,0	135	2,1
1	**·136**	712	10,4	144	2,1
1	**·140**	754	10,8	152	2,1
1	**·144**	798	11,3	161	2,3
1	**·148**	844	11,5	170	2,4
0·000002	**0·152**	− ·00890	− 11,9	− ·00180	− 2,5
2	**·156**	939	12,1	190	2,5
2	**·160**	987	12,3	200	2,5
2	**·164**	1037	12,6	210	2,5
2	**·168**	1088	12,9	220	2,6
0·000002	**0·172**	− ·01140	− 13,1	− ·00231	− 2,7
2	**·176**	1193	13,4	242	2,8
2	**·180**	1247	13,8	253	2,9
2	**·184**	1303	14,1	265	3,0
2	**·188**	1360	14,5	277	3,0
0·000003	**0·192**	− ·01419	− 15,0	− ·00289	− 3,0
3	**·196**	1480	15,3	301	3,1
3	**·200**	1541	15,4	314	3,3
3	**·204**	1603	15,6	327	3,3
3	**·208**	1666	15,9	340	3,4
0·000003	**0·212**	− ·01730	− 16,3	− ·00354	− 3,5
3	**·216**	1796	16,5	368	3,5
3	**·220**	1862	16,6	382	3,5
4	**·224**	1929	17,1	396	3,5
4	**·228**	1999	17,5	410	3,6
0·000004	**0·232**	− ·02069	− 17,9	− ·00425	− 3,9
4	**·236**	2142	18,4	441	4,0
4	**·240**	2216	18,6	457	4,0
4	**·244**	2291	18,8	473	4,0
4	**·248**	2366	18,8	489	4,0
0·000004	**0·252**	− ·02441	− 18,8	− ·00505	− 4,0

The Argument is the Annual Parallax p, as computed from the Approximate Tables IV, V, VI.

No Constant has been added to Column 1, which gives an Additional Equation of the Semiduration. Columns 3 and 5 must be multiplied respectively into the Semiduration as taken from Tables XLIX–LV, and the Reduction as taken from Tables LVI–LXIV, and the products taken as further corrections to these quantities.

When p is positive, these corrections apply to *Ingress* for the Shadow and *Egress* for Transit of Disc; when p is negative, they apply to *Egress* for the Shadow and *Ingress* for Transit of Disc.

SATELLITE III

Tables of the Phenomena

LXVI Standard Light Curves in Eclipse

Lat / $(l)_0$	1 0	1 5 / 0 5	1 6 / 0 4	1 7 / 0 3	1 8 / 0 2	1 9 / 0 1
	m	m	m			m
−3 0	0 01	0 01	0 01	01	0 01	0 01
2 8	0	0	0			
2 6	04	04	04	04	04	04
2 4	05	05	05	05	5	05
2 2	08	08	07	7	7	07
2 0	11	11	1	1	10	09
−1 8	0 15	0 15	0 15	0 15	0 15	0 14
1 6	19	19	19	19	19	18
1 4	23	23	3	3	3	3
1 2	28	28	8	8	28	8
1 0	34	34	34	34	33	33
−0 8	4	0 4	0 4	4	0 41	0 40
0 6	49	49	49	49	49	48
0 4	58	58	58	58	58	57
−0 2	67	67	67	67	67	66
0 0	0 75	0 75	0 75	0 75	75	0 75

Lat / $(k)_0$	1 0	1 5 / 0 5	1 6 / 0 4	1 7 / 0 3	1 8 / 0 2	1 9 / 0 1
	m	m	m			m
0 0	0 75	0 75	0 75	0 75	0 75	0 75
+0 2	0 83	0 83	0 83	0 83	0 83	83
0 4	0 95	95	0 95	0 95	0 95	0 94
0 6	1 10	1 10	1 10	1 10	1 09	1 09
0 8	1 6	1 25	1 5	1 5	1 4	1 24
1 0	1 41	1 4	1 40	1 40	1 39	1 38
+1 2	1 59	1 58	1 58	1 57	1 56	1 54
1 4	1 79	1 78	1 77	1 76	1 75	1 7
1 6	1	2 00	1 99	1 98	1 95	1 91
1 8	26	23	2 2	21	2 18	1
2 0	2 56	2 51	51	2 48	2 45	35
+2 2	91	2 85	2 84	80	2 75	61
2 4	3 29	3 1	3 19	3 14	3 08	2 91
2 6	3 74	3 63	3 60	3 54	3 45	3 1
2 8	4 36	4 17	4 13	4 05	3 90	3 56
+3 0	5 37	4 96	4 93	4 75	4 52	3 99

Ihi t bl h w tl Sta d d Light f E lip f diff t l tit d i t m f M g it d d tl C dl t (k) F L tit d (k)
i tl f tl m ltipl f tl S dl whl h i t ff l y l plt lm f m th C t f tl S t llite dl

LXVII Mean Motion in Light Curve

		3	4
Lat	$\Delta(l)_0$ fo 1	Δ 0 0	Lat
0 08	00421	26	1 92
10	47	3	90
12	513	21	88
14	55	19	86
16	589	18	84
18	62	16	82
0 20	00654	15	1 80
22	683	14	78
24	711	14	76
26	737	13	74
28	76	1	72
0 30	00785	11	1 70
32	807	11	68
34	829	10	66
36	849	1	64
38	868	10	62
0 40	00887	9	1 60
42	904	9	58
44	9 1	8	56
46	937	8	54
48	95	8	52
0 50	00967	7	1 50
52	980	7	48
0 54	00993	7	1 46

		3	4
Lat	$\Delta(k)_0$ for 1	Δ 0 01	Lat
0 54	00993	7	1 46
56	1006	6	44
58	1018	6	42
60	1029	5	40
62	1039	5	38
64	1049	5	36
0 66	01058	5	1 34
68	1 67	4	32
70	1075	4	30
72	1083	4	28
74	1090	4	26
0 76	01097	3	1 24
78	1103	3	22
80	1108	3	20
82	1113		18
84	1117		16
0 86	0 1121	2	1 14
88	11 4	2	12
90	1128		10
92	1130	1	08
94	1132	1	06
0 96	01133	1	1 04
98	1134	0	02
1 00	01134	0	1 00

Th E1 tl f this T bl t d by th t f T bl LXVIII gl th m tl f (k) i d th A g m t i th L titud tak f m T bl XXXVII XLII

LXVIII Equation of Motion

Var / Lat	− 01	00	+ 01	Var / Lat
0 1	+13	0	−13	1 9
0 2	+10	0	−10	1 8
0 3	+ 8	0	− 8	1 7
0 4	+ 7	0	− 7	1 6
0 5	+ 7	0	− 7	1 5
0 6	+ 6	0	− 6	1 4
1 0	+ 6	0	− 6	1 0

Thi tl t b ppli d t tl t y f T bl LXVII th nit i oooo Th A g m t th V i tl d tl L tit d t k f m T bl XXXIII XLII

SATELLITE IV

Approximate Tables

of

Heliocentric and Geocentric Conjunction

SATELLITE IV

Approximate Tables of Conjunction

I — Epochs of Conjunction

1	2	3	4	5	6	7	8	9
Year	Conjunction	Variation for 100^d	α	Variation for 100^d	β	γ	δ	ϵ
	d		d		d	d	d	d
1850	0·4617	+ 1,1	1785·9	+ ·03	332·78	365·2	12·297	9·19
1851	4·0402	+ 2,1	2154·6	+ ·05	302·47	3·2	13·685	10·61
***1852**	7·6191	+ 1,1	2523·4	+ ·03	272·17	6·6	15·074	12·03
1853	10·1977	0,0	2892·0	·00	241·87	9·9	16·463	13·46
1854	13·7758	+ 1,1	3260·6	+ ·03	211·57	13·2	1·161	14·88
1855	0·6008	− 3,2	3612·7	− ·08	164·51	365·1	2·486	16·24
***1856**	4·1778	0,0	3980·9	·00	134·19	3·1	3·873	0·96
1857	6·7559	− 1,1	16·8	− ·03	103·89	6·4	5·261	2·38
1858	10·3337	0,0	385·3	·00	73·58	9·7	6·648	3·80
1859	13·9118	+ 1,1	753·9	+ ·03	43·27	13·0	8·037	5·22
***1860**	0·7368	+ 2,1	1105·8	+ ·05	395·10	364·9	9·363	6·57
1861	3·3157	+ 3,2	1474·6	+ ·08	364·80	2·9	10·752	8·00
1862	6·8950	0,0	1843·4	·00	334·50	6·2	12·141	9·42
1863	10·4731	− 3,2	2212·0	− ·08	304·19	9·6	13·529	10·84
***1864**	14·0502	− 6,4	2580·3	− ·17	273·89	12·9	14·916	12·26
1865	16·6261	− 5,3	2948·3	− ·14	243·57	16·2	16·301	13·67
1866	3·4486	− 9,6	3299·7	− ·25	196·51	2·8	0·933	15·03
1867	7·0232	− 3,2	3667·3	− ·08	166·20	6·1	2·319	16·45
***1868**	10·6003	0,0	4035·6	·00	135·90	9·4	3·706	1·18
1869	13·1784	+ 4,2	71·6	+ ·11	105·59	12·7	5·094	2·60
1870	0·0045	+ 7,4	423·9	+ ·19	58·53	364·5	6·420	3·95
1871	3·5854	+ 8,4	793·1	+ ·22	28·23	2·6	7·811	5·37
***1872**	7·1666	+ 6,4	1162·5	+ ·17	396·81	5·9	9·202	6·79
1873	9·7472	+ 3,2	1531·7	+ ·08	366·51	9·2	10·592	8·22
1874	13·3264	− 1,1	1900·6	− ·03	336·20	12·6	11·981	9·64
1875	0·1506	− 6,4	2252·3	− ·17	289·14	364·4	13·306	11·00
***1876**	3·7264	− 7,4	2620·3	− ·19	258·83	2·4	14·692	12·41
1877	6·3019	− 7,4	2988·2	− ·19	228·52	5·8	16·077	13·83
1878	9·8773	− 6,3	3356·0	− ·16	198·22	9·1	0·772	15·24
1879	13·4532	− 1,1	3724·0	− ·03	167·91	12·4	2·158	16·67
***1880**	0·2774	+ 3,2	4075·7	+ ·08	120·85	364·2	3·483	1·33
1881	2·8566	+ 6,3	112·0	+ ·16	90·55	2·3	4·872	2·75
1882	6·4372	+ 6,3	481·2	+ ·16	60·24	5·6	6·262	4·17
1883	10·0176	+ 4,2	850·4	+ ·11	29·93	8·9	7·652	5·59
***1884**	13·5972	+ 1,1	1219·3	+ ·03	398·51	12·2	9·042	7·01
1885	16·1758	− 2,1	1588·0	− ·05	368·21	15·6	10·430	8·43
1886	2·9996	− 4,2	1939·6	− ·11	321·15	2·1	11·755	9·79
1887	6·5762	− 4,2	2307·8	− ·11	290·84	5·4	13·142	11·21
***1888**	10·1528	− 3,2	2676·0	− ·08	260·54	8·8	14·528	12·62
1889	12·7298	− 1,1	3044·3	− ·03	230·23	12·1	15·915	14·04
1890	16·3076	+ 3,2	3412·8	+ ·08	199·94	15·4	0·612	15·47
1891	3·1333	+ 4,2	3764·9	+ ·11	152·87	2·0	1·938	0·13
***1892**	6·7130	+ 4,2	4133·9	+ ·11	122·56	5·3	3·328	1·55
1893	9·2927	+ 4,2	170·2	+ ·11	92·25	8·6	4·718	2·97
1894	12·8724	+ 2,1	539·2	+ ·05	61·95	11·9	6·108	4·39
1895	16·4514	− 1,1	908·0	− ·03	31·65	15·2	7·497	5·82
***1896**	3·2755	− 2,1	1259·7	− ·05	383·47	1·8	8·821	7·17
1897	5·8529	− 4,2	1628·1	− ·11	353·16	5·1	10·208	8·59
1898	9·4295	− 3,2	1996·3	− ·08	322·86	8·4	11·595	10·00
1899	13·0064	− 2,1	2364·6	− ·05	292·55	11·8	12·982	11·42
1900	16·5838	+ 1,1	2732·9	+ ·03	262·24	15·1	14·369	12·84
Period	16·7536	...	4332·6	...	398·88	365·3	16·690	16·69

The constant $-0^d{\cdot}3500$ has been applied to each entry in column 2.

The constant $-0^d{\cdot}300$ has been applied to each entry in columns 6, 7, 8, 9.

For Eclipses the argument γ is not wanted.

Column 2 corrected by the equations from the following tables, gives Superior Conjunction as required for Eclipses and Occultations. To find Inferior Conjunction for Shadows and Transits, add (or subtract) one half the synodic period, *i.e.* $8^d{\cdot}3768$, to the numbers of columns 2, 4, 6, 7, 8, 9.

SATELLITE IV
Approximate Tables of Conjunction

I *continued*

Epochs of Conjunction

		3	4	5	6	7	8	9
Year	Conjunction	Variation for 100^d	α	Variation for 100^d	β	γ	δ	ϵ
			d		d	d	d	d
1900	16 5838	+ 1 1	273 9	+ 03	6 24	15 1	14 369	12 84
1901	3 4088	+ 3 2	3084 9	+ 08	215 18	1 6	15 694	14 0
1902	6 9881	+ 2 1	3453 7	+ 05	184 88	5 0	0 393	15 6
1903	10 5671	0 0	38 5	00	154 57	8 3	1 78	35
1904	14 1452	− 1 1	4191 1	− 03	1 4 27	11 6	3 170	1 77
1905	16 7 3	− 2 1	227 0	− 05	93 96	14 9	4 558	3 19
1906	3 5467	− 1	578 6	− 05	46 90	1 5	5 882	4 55
1907	7 1241	− 1 1	947 0	− 03	16 60	4 8	7 69	5 97
1908	10 7018	0 0	1315 5	00	385 17	8 1	8 657	7 38
1909	13 28 0	0 0	1684 0	00	354 87	11 4	10 045	8 80
1910	0 1046	+ 1	2035 9	+ 05	307 79	363 3	11 370	10 16
1911	3 6835	+ 1 1	2404 6	+ 3	77 50	1 3	12 759	11 58
1912	7 621	+ 1 1	773 3	+ 03	47 0	4 6	14 147	13 00
1913	9 8406	0	3142 0	00	16 89	8 0	15 536	14 4
1914	13 4187	− 1	3510 6	− 05	186 59	11 3	0 33	15 84
1915	0 4 5	− 1	3862 2	− 05	139 53	363 1	1 558	0 51
1916	3 8199	− 3 2	4 30 6	− 08	109 2	1 2	2 945	1 93
1917	6 3969	0 0	266	00	78 92	4 5	4 332	3 35
1918	9 9751	+ 1 1	634 8	+ 03	48 61	7 8	5 72	4 76
1919	13 5536	+ 2 1	1003 5	+ 05	18 30	11 1	7 109	6 18
1920	0 3 89	+ 3 2	1355 5	+ 08	370 13	362 9	8 435	7 54
1921	9583	+ 4 2	1724 4	+ 11	339 82	1 0	9 824	8 96
1922	6 5379	− 4 2	093 4	− 11	3 9 52	4 3	11 214	10 38
1923	10 1145	− 1 1	2461 6	− 03	279 21	7 6	1 600	11 80
1924	13 69 3	− 7 4	830 0	− 19	248 91	11 0	13 988	13 22
1925	16 677	− 8 4	3197 9	−	18 60	14 3	15 373	14 64
1926	3 089	− 7 4	3549 0	− 19	171 54	0 8	0 005	15 99
1927	6 6647	− 3 2	3916 8	− 08	141 22	4	1 390	0 72
1928	10 416	+ 1 1	4 85 1	+ 03	110 9	7 5	2 777	13
1929	1 8 02	+ 6 3	3 1 2	+ 16	80 61	10 8	4 165	3 55
1930	16 4006	+ 7 4	690 4	+ 19	50 30	14 1	5 556	4 97
1931	3 80	+ 7 4	104 9	+ 19	3 6	0 7	6 883	6 34
*1932	6 8088	+ 6 3	1412 2	+ 16	371 84	4 0	8 274	7 76
1933	9 3893	+ 2 1	1781 3	+ 05	341 53	7 3	9 664	9 18
1934	1 968	− 2 1	2150 1	− 05	311 22	10 6	11 053	10 60
1935	16 5456	− 6 3	518 5	− 16	280 9	14 0	12 440	12 01
1936	3 3679	− 8 4	869 7	− 21	233 86	0 5	13 763	13 37
1937	5 94 9	− 8 4	3 37 5	− 1	03 55	3 8	15 148	14 79
1938	9 5179	− 4 2	3605 3	− 11	173 25	7 2	16 533	16 20
1939	13 0945	− 1 1	3973 4	− 03	142 94	10 5	1 29	0 93
1940	16 6723	+ 4 2	9 3	+ 11	112 63	13 8	617	2 35
1941	4984	+ 6 3	361 5	+ 16	65 57	0 4	3 944	3 71
1942	6 0789	+ 5 3	730 7	+ 14	35 27	3 7	5 334	5 14
1943	9 6589	+ 3 2	1099 8	+ 08	4 97	7	6 723	6 56
1944	13 383	0	1468 7	00	373 54	10 3	8 113	7 98
1945	15 8164	− 2 1	1837 3	− 5	343 24	13 6	9 501	9 40
1946	6401	− 4	2188 9	− 11	296 18	0 2	10 8 5	10 75
1947	6 168	− 3 2	2557 1	− 08	265 87	3 5	12 213	12 17
1948	9 7938	− 1	2925 3	− 05	235 56	6 8	13 599	13 58
1949	12 3711	0 0	3 93 7	00	205 25	10 2	14 987	15 00
1950	15 9493	+ 3 2	3662 3	+ 08	174 95	13 5	16 375	16 42
Period	16 7536		4332 6		398 88	365 3	16 690	16 69

The constant $-0^d 3500$ has been applied to each entry in column 2

The constant $-0^d 3 0$ has been applied to each entry in columns 6 7 8 9

For Eclipses the argument γ is not wanted

Column 2 corrected by the equations from the following tables gives Superior Conjunction as required for Eclipses and Occultations To find Inferior Conjunction for Shadows and Transits add (or subtract) one half the synodic period *i e* $8^d 3768$ to the numbers of columns 2 4 6 7 8 9

SATELLITE IV

Approximate Tables of Conjunction

I *continued*

Epochs of Conjunction

1	2	3	4	5	6	7	8	9
Year	Conjunction	Variation for 100^d	α	Variation for 100^d	β	γ	δ	ϵ
	d		d		d	d	d	d
1950	15·9493	+ 3,2	3662·3	+ ·08	174·95	13·5	16·375	16·42
1951	2·7751	+ 3,2	4014·4	+ ·08	127·90	0·0	1·010	1·10
*1952	6·3544	+ 4,2	50·7	+ ·11	97·59	3·4	2·399	2·52
1953	8·9340	+ 2,1	419·7	+ ·05	67·28	6·7	3·790	3·94
1954	12·5130	+ 1,1	788·5	+ ·03	36·98	10·0	5·178	5·36
1955	16·0915	− 1,1	1157·1	− ·03	6·67	13·3	6·567	6·78
*1956	2·9157	− 2,1	1508·9	− ·05	358·50	365·2	7·891	8·13
1957	5·4931	− 4,2	1877·2	− ·11	328·19	3·2	9·279	9·55
1958	9·0697	− 2,1	2245·4	− ·05	297·89	6·5	10·665	10·97
1959	12·6471	0,0	2613·8	·00	267·58	9·8	12·052	12·39
*1960	16·2252	+ 2,1	2982·4	+ ·05	237·27	13·2	13·440	13·81
1961	2·0506	+ 2,1	3334·3	+ ·05	190·22	365·0	14·766	15·17
1962	5·6294	+ 1,1	3703·2	+ ·03	159·91	3·0	16·155	16·59
1963	9·2080	− 1,1	4071·9	− ·03	129·60	6·4	0·853	1·32
*1964	12·7857	− 2,1	107·8	− ·05	99·30	9·7	2·241	2·74
1965	15·3632	− 2,1	476·2	− ·05	68·99	13·0	3·628	4·16
1966	2·1870	0,0	827·8	·00	21·93	364·8	4·952	5·51
1967	5·7651	− 3,2	1196·4	− ·08	390·51	2·9	6·340	6·93
*1968	9·3421	+ 1,1	1564·7	+ ·03	360·20	6·2	7·727	8·34
1969	11·9206	+ 2,1	1933·4	+ ·05	329·89	9·5	9·115	9·76
1970	15·4995	+ 2,1	2302·1	+ ·05	299·59	12·8	10·504	11·19
1971	2·3249	+ 1,1	2654·2	+ ·03	252·53	364·7	11·830	12·55
*1972	5·9035	+ 1,1	3022·9	+ ·03	222·23	2·7	13·218	13·97
1973	8·4819	− 2,1	3391·5	− ·05	191·92	6·0	14·608	15·39
1974	12·0594	− 3,2	3759·9	− ·08	161·62	9·4	15·995	0·12
1975	15·6363	− 2,1	4128·2	− ·05	131·31	12·7	0·691	1·54
*1976	2·4601	+ 4,2	147·2	+ ·11	84·24	364·5	2·015	2·88
1977	5·0398	− 7,4	516·2	− ·19	53·95	2·6	3·405	4·31
1978	8·6153	+ 1,1	884·1	+ ·03	23·63	5·9	4·790	5·72
1979	12·1938	+ 4,2	1252·7	+ ·11	392·21	9·2	6·179	7·14
*1980	15·7735	+ 4,2	1621·7	+ ·11	361·91	12·5	7·569	8·57
1981	1·5997	+ 3,2	1973·9	+ ·08	314·85	364·3	8·895	9·93
1982	5·1789	− 1,1	2342·8	− ·03	284·55	2·4	10·285	11·35
1983	8·7567	− 6,3	2711·3	− ·16	254·24	5·7	11·672	12·77
*1984	12·3325	− 7,4	3079·3	− ·19	223·94	9·0	13·058	14·19
1985	14·9079	− 9,5	3447·2	− ·25	193·63	12·4	14·443	15·61
1986	1·7290	− 6,3	3798·1	− ·16	146·56	364·2	15·765	0·26
1987	5·3049	− 2,1	4166·0	− ·05	116·26	2·2	0·460	1·68
*1988	8·8822	+ 2,1	201·8	+ ·05	85·95	5·6	1·847	3·10
1989	11·4612	+ 5,3	570·6	+ ·14	55·64	8·8	3·236	4·52
1990	15·0412	+ 8,4	939·7	+ ·22	25·34	12·2	4·626	5·94
1991	1·8689	+ 7,4	1292·3	+ ·19	377·16	364·0	5·954	7·30
*1992	5·4497	+ 5,3	1661·6	+ ·14	346·86	2·1	7·345	8·72
1993	8·0299	+ 1,1	2030·7	+ ·03	316·56	5·4	8·735	10·15
1994	11·6084	− 3,2	2399·4	− ·08	286·26	8·7	10·123	11·57
1995	15·1854	− 7,4	2767·6	− ·19	255·95	12·0	11·510	12·99
*1996	2·0073	− 8,4	3118·8	− ·22	208·88	363·9	12·833	14·33
1997	4·5823	− 7,4	3486·5	− ·19	178·59	1·9	14·217	15·76
1998	8·1578	− 4,2	3854·4	− ·11	148·27	5·2	15·603	0·48
1999	11·7344	0,0	4222·6	·00	117·96	8·6	0·299	1·90
*2000	15·3124	...	258·6	·00	87·66	11·9	1·687	3·32
Period	16·7536	...	4332·6	...	398·88	365·3	16·690	16·69

The constant $-0^d{\cdot}3500$ has been applied to each entry in column 2.

The constant $-0^d{\cdot}300$ has been applied to each entry in columns 6, 7, 8, 9.

For Eclipses the argument γ is not wanted.

Column 2 corrected by the equations from the following tables, gives Superior Conjunction as required for Eclipses and Occultations. To find Inferior Conjunction for Shadows and Transits, add (or subtract) one half the synodic period, *i.e.* $8^d{\cdot}3768$, to the numbers of columns 2, 4, 6, 7, 8, 9.

SATELLITE IV

Approximate Tables of Conjunction

II Motions of the Arguments

			3	4	5
Syn Rev	D te		β γ	δ	ϵ
			d	d	d
1	Ja ua y	16 7536	16 75	0 063	0 06
2	Гebrua y	5 71	33 51	1 6	13
3		19 607	5 26	189	19
4	Ma ch	8 014	67 01	252	26
5		24 7678	83 77	315	32
6	April	10 5 13	100 52	0 379	0 39
7		27 2749	117 27	44	45
8	May	14 0284	134 03	505	52
9		30 78 0	150 78	568	58
10	June	16 5355	167 54	631	65
11	July	3 891	184 29	0 694	0 71
12		0 04 6	01 04	757	77
13	August	5 796	217 80	820	84
14		22 5497	34 55	883	90
15	September	8 3033	251 30	946	97
16		25 0568	68 06	1 010	1 03
17	October	11 8104	84 81	1 073	1 10
18		28 5639	301 56	1 136	1 16
19	November	14 3175	318 32	1 199	1 23
20	Decembe	1 0710	335 07	1 262	1 29
21		17 8 46	351 82	1 325	1 36
22		34 5781	368 58	1 388	1 42

I L pY dimi l h th d t i C l m by ft F b 8

SATELLITE IV

Approximate Tables of Conjunction

III Equation of Conjunction Argument α Ec., Oc., Sh., Tr.

1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
α	Equation	Δ 10d	α	Equation	Δ 10d	α	Equation	Δ 10d	α	Equation	Δ 10d	α	Equation	Δ 10d
d	d		d	d		d	d		d	d		d	d	
0	0·3000	+40	1000	0·5584	+ 3	2000	0·3584	−35	3000	0·0633	−15	4000	0·1732	+35
20	·3080	40	1020	·5588	+ 1	2020	·3514	35	3020	604	14	4020	·1802	35
40	·3160	40	1040	·5589	0	2040	·3445	35	3040	577	13	4040	·1873	36
60	·3239	40	1060	·5588	− 1	2060	·3375	35	3060	552	12	4060	·1944	36
80	·3319	40	1080	·5585	2	2080	·3305	35	3080	529	11	4080	·2018	37
100	·3398	39	1100	·5580	3	2100	·3234	35	3100	508	10	4100	·2092	37
120	0·3476	+39	1120	0·5572	− 4	2120	0·3164	−35	3120	0·0489	− 9	4120	0·2167	+38
140	·3555	39	1140	·5563	5	2140	·3093	36	3140	472	8	4140	·2243	38
160	·3632	39	1160	·5551	6	2160	·3022	35	3160	457	7	4160	·2319	39
180	·3709	38	1180	·5538	7	2180	·2952	35	3180	444	6	4180	·2397	39
200	·3785	38	1200	·5522	9	2200	·2881	36	3200	434	5	4200	·2474	39
220	0·3861	+38	1220	0·5504	−10	2220	0·2810	−35	3220	0·0425	− 4	4220	0·2553	+39
240	·3935	37	1240	·5484	11	2240	·2740	35	3240	418	3	4240	·2631	39
260	·4009	37	1260	·5462	12	2260	·2669	35	3260	414	2	4260	·2711	40
280	·4082	37	1280	·5438	12	2280	·2599	35	3280	411	− 1	4280	·2790	40
300	·4154	36	1300	·5413	13	2300	·2529	35	3300	411	+ 1	4300	·2870	40
320	0·4224	+35	1320	0·5385	−14	2320	0·2460	−35	3320	0·0413	+ 2	4320	0·2950	+40
340	·4293	34	1340	·5356	15	2340	·2391	35	3340	418	3	4340	·3030	40
360	·4361	34	1360	·5325	16	2360	·2322	34	3360	424	4	4360	·3110	40
380	·4428	33	1380	·5291	17	2380	·2254	34	3380	433	5	4380	·3190	40
400	·4493	32	1400	·5257	18	2400	·2186	34	3400	444	6	4400	·3269	40
420	0·4557	+32	1420	0·5220	−19	2420	0·2119	−34	3420	0·0457	+ 7	4420	0·3349	+40
440	·4619	31	1440	·5182	20	2440	·2052	33	3440	472	8	4440	·3427	39
460	·4680	30	1460	·5142	21	2460	·1987	33	3460	490	9	4460	·3505	39
480	·4739	29	1480	·5100	21	2480	·1922	33	3480	509	10	4480	·3584	39
500	·4796	28	1500	·5057	22	2500	·1857	32	3500	531	12	4500	·3661	38
520	0·4852	+28	1520	0·5012	−23	2520	0·1794	−32	3520	0·0556	+13	4520	0·3737	+38
540	·4906	27	1540	·4966	24	2540	·1731	31	3540	582	14	4540	·3813	38
560	·4958	26	1560	·4918	24	2560	·1669	31	3560	610	15	4560	·3889	37
580	·5008	25	1580	·4869	25	2580	·1609	30	3580	641	16	4580	·3962	37
600	·5056	24	1600	·4818	26	2600	·1549	30	3600	674	17	4600	·4036	37
620	0·5103	+23	1620	0·4766	−26	2620	0·1490	−29	3620	0·0709	+18	4620	0·4109	+36
640	·5147	22	1640	·4713	27	2640	·1433	29	3640	746	19	4640	·4180	35
660	·5190	21	1660	·4659	28	2660	·1376	28	3660	785	20	4660	·4250	35
680	·5230	20	1680	·4603	28	2680	·1321	27	3680	826	21	4680	·4318	34
700	·5268	19	1700	·4546	29	2700	·1267	27	3700	869	22	4700	·4386	34
720	0·5305	+18	1720	0·4488	−29	2720	0·1214	−26	3720	0·0914	+23	4720	0·4452	+33
740	·5339	17	1740	·4429	30	2740	·1163	25	3740	·0961	24	4740	·4517	32
760	·5371	16	1760	·4369	30	2760	·1113	25	3760	·1010	25	4760	·4581	31
780	·5401	14	1780	·4308	31	2780	·1064	24	3780	·1061	26	4780	·4642	30
800	·5428	13	1800	·4246	31	2800	·1017	23	3800	·1114	27	4800	·4702	30
820	0·5454	+12	1820	0·4183	−32	2820	0·0971	−23	3820	0·1168	+28	4820	0·4760	+29
840	·5477	11	1840	·4119	32	2840	927	22	3840	·1225	29	4840	·4818	28
860	·5498	10	1860	·4054	33	2860	884	21	3860	·1283	30	4860	·4873	27
880	·5517	9	1880	·3989	33	2880	843	20	3880	·1343	30	4880	·4926	26
900	·5534	8	1900	·3923	33	2900	804	19	3900	·1404	31	4900	·4977	25
920	0·5548	+ 7	1920	0·3856	−34	2920	0·0766	−19	3920	0·1467	+32	4920	0·5027	+24
940	·5561	6	1940	·3789	34	2940	730	18	3940	·1531	33	4940	·5074	23
960	·5571	5	1960	·3721	34	2960	696	17	3960	·1597	33	4960	·5120	22
980	·5579	3	1980	·3653	34	2980	664	16	3980	·1664	34	4980	·5163	22
1000	0·5584	+ 3	2000	0·3584	−35	3000	0·0633	−15	4000	0·1732	+35	5000	0·5206	+21

The Equation of this Table to be added to the entries of columns 2, 6, 7, 8, 9 of Table I. Applied Constant: +0d·3000.

SATELLITE IV

Approximate Tables of Conjunction

IV Equation of Geocentric Conjunction Argument β Oc, Tr

		3			3			3			3
β	Equatio	Δ	β	Equation	Δ d	β	Equation	Δ 1d	β	Equatio	Δ 1d
d									d	d	
0	−0 00	−1	**100**	−0 6059	+ 15	**200**	−0 96	+ 68	**300**	+0 4075	+ 14
2	1 00	100	**102**	60 8	17	**202**	8 6	68	**302**	41 0	11
4	14 0	100	**104**	5992	19	**204**	691	68	**304**	4120	9
6	1599	99	**106**	5951	1	**206**	556	67	**306**	4135	7
8	1796	98	**108**	59 7	3	**208**	4	67	**308**	4146	4
10	199	98	**110**	5859	25	**210**	87	68	**310**	4151	+ 1
12	−0 186	− 97	**112**	−0 5806	+ 8	**212**	−0 015	+ 68	**312**	+0 4151	− 1
14	379	96	**114**	5749	30	**214**	− 17	67	**314**	4146	4
16	569	94	**116**	5688	32	**216**	+ 116	67	**316**	4137	6
18	756	93	**118**	5623	33	**218**	249	66	**318**	4121	9
20	294	91	**120**	5556	35	**220**	381	66	**320**	4100	12
22	−0 31 0	− 9	**122**	−0 5485	+ 37	**222**	+0 051	+ 65	**322**	+0 4075	− 14
24	3 98	88	**124**	5411	38	**224**	64	65	**324**	4043	17
26	3471	86	**126**	533	40	**226**	77	65	**326**	4006	20
28	3640	84	**128**	5 5	4	**228**	901	64	**328**	3964	23
30	3805	81	**130**	5165	43	**230**	10 9	64	**330**	3914	26
32	−0 3964	− 79	**132**	−0 5077	+ 45	**232**	+0 1156	+ 63	**332**	+0 3861	− 29
34	4119	76	**134**	4987	46	**234**	1281	62	**334**	3800	32
36	4269	74	**136**	4893	47	**236**	1405	6	**336**	3734	35
38	4413	71	**138**	4798	49	**238**	1528	61	**338**	3661	38
40	4553	68	**140**	4698	51	**240**	1649	60	**340**	3584	40
42	−0 4686	− 65	**142**	−0 4595	+ 52	**242**	+0 1768	+ 59	**342**	+0 3500	− 44
44	4814	63	**144**	4491	53	**244**	1885	58	**344**	3410	47
46	4937	60	**146**	4384	54	**246**	01	58	**346**	3313	50
48	5 54	57	**148**	4 76	55	**248**	115	57	**348**	3 11	53
50	5165	54	**150**	4165	56	**250**	2 7	56	**350**	3103	55
52	−0 5 69	− 51	**152**	−0 405	+ 57	**252**	+0 2338	+ 55	**352**	+0 2990	− 58
54	5368	48	**154**	3937	58	**254**	445	53	**354**	870	62
56	5460	45	**156**	38 0	59	**256**	550	52	**356**	2744	65
58	5548	4	**158**	3702	60	**258**	2654	51	**358**	2612	67
60	5628	39	**160**	3581	61	**260**	2754	50	**360**	2476	70
62	−0 570	− 36	**162**	−0 3459	+ 6	**262**	+0 285	+ 48	**362**	+0 334	− 72
64	5772	33	**164**	3335	6	**264**	946	47	**364**	2187	75
66	5834	30	**166**	3 11	6	**266**	3038	46	**366**	033	78
68	5891	27	**168**	3086	63	**268**	31 8	44	**368**	1876	80
70	594	4	**170**	2958	64	**270**	3 13	4	**370**	1713	83
72	−0 5988	− 2	**172**	−0 28 9	+ 65	**272**	+0 3297	+ 41	**372**	+0 1546	− 85
74	60 8	18	**174**	7	65	**274**	3377	39	**374**	1375	87
76	6061	16	**176**	2570	65	**276**	3453	37	**376**	1 00	88
78	6090	13	**178**	2439	66	**278**	3526	36	**378**	1022	91
80	611	10	**180**	2307	66	**280**	3595	34	**380**	0838	93
82	−0 6130	− 8	**182**	0 2174	+ 67	**282**	+0 3660	+ 32	**382**	+0 0652	− 94
84	614	5	**184**	2041	67	**284**	3723	31	**384**	463	95
86	6149	3	**186**	1908	67	**286**	3782	28	**386**	272	97
88	615	0	**188**	1774	67	**288**	3835	26	**388**	+ 77	98
90	6148	+ 3	**190**	1639	68	**290**	3886	24	**390**	− 117	98
92	−0 614	+ 5	**192**	−0 1504	+ 68	**292**	+0 3932	+ 2	**392**	−0 0314	− 99
94	61 7	8	**194**	1368	68	**294**	3975	20	**394**	512	99
96	6110	10	**196**	1 33	68	**296**	4012	18	**396**	711	100
98	6086	13	**198**	1 98	68	**298**	4046	16	**398**	912	100
100	−0 6059	+ 15	**200**	−0 0962	+ 68	**300**	+0 4075	+ 14	**400**	−0 1113	−100

Appl d C tant oo Th Eq t f thi T bl t d by th f T bl V VI gi th A 1P ll p whi l m t b ppli d f O lt ti d T it to th t f th C l 8 9 f T bl I d whi h l g m t of T bl LXI f mp ti g th ff t f J piter ph

SATELLITE IV

Approximate Tables of Conjunction

V | Equation of Geocentric Conjunction | Arguments α, β | Oc., Tr.

α \ β	0^d	10^d	20^d	30^d	40^d	50^d	60^d	70^d	80^d	90^d	100^d	110^d	120^d	130^d	140^d	150^d	160^d	170^d	180^d	190^d	200^d
0^d	700	643	587	538	496	463	439	426	424	431	445	465	491	518	547	576	605	[illegible]	[illegible]	679	[illegible]
100	784	726	666	611	559	516	479	453	437	432	433	443	460	479	[illegible]	[illegible]	[illegible]	576	[illegible]	[illegible]	644
200	867	810	748	686	627	572	525	486	457	438	428	426	434	446	462	481	501	[illegible]	544	566	[illegible]
300	947	890	827	760	695	631	573	522	481	450	428	416	413	417	427	440	[illegible]	474	[illegible]	512	[illegible]
400	1021	968	904	835	763	692	624	563	510	467	434	411	398	404	[illegible]	404	417	[illegible]	[illegible]	461	[illegible]
500	1089	1039	976	906	830	753	677	606	543	489	440	412	391	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	420	416
600	1148	1103	1043	973	895	813	730	652	579	516	462	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
700	1198	1159	1103	1034	955	871	783	698	618	546	485	[illegible]	394	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
800	1237	1205	1154	1088	1010	924	834	744	659	580	511	452	[illegible]	[illegible]	345	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
900	1266	1241	1196	1134	1058	974	882	789	[illegible]	616	541	476	423	382	351	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1000	1282	1264	1225	1170	1099	1017	926	833	741	651	574	504	446	[illegible]	364	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1100	1286	1277	1246	1197	1132	1053	965	874	781	693	611	537	475	424	384	351	[illegible]	317	[illegible]	[illegible]	[illegible]
1200	1278	1277	1255	1213	1155	1081	999	911	821	732	649	573	509	454	410	376	339	[illegible]	[illegible]	311	[illegible]
1300	1257	1265	1252	1219	1169	1103	1027	943	857	770	688	613	546	490	444	405	375	355	339	[illegible]	[illegible]
1400	1225	1241	1237	1214	1173	1116	1048	971	889	807	728	653	580	529	481	441	[illegible]	[illegible]	[illegible]	[illegible]	341
1500	1183	1206	1212	1198	1167	1121	1061	993	919	842	767	695	630	573	523	481	448	424	401	384	[illegible]
1600	1130	1161	1175	1172	1151	1116	1060	1009	943	874	804	737	674	618	569	528	492	465	442	428	[illegible]
1700	1067	1104	1128	1135	1126	1102	1065	1018	962	902	840	[illegible]	720	666	619	578	541	511	479	467	449
1800	997	1041	1073	1090	1092	1081	1056	1021	976	926	872	818	764	715	670	630	593	565	539	517	496
1900	921	969	1009	1036	1049	1050	1038	1016	985	945	901	854	808	763	721	683	648	620	594	570	548
2000	840	893	939	975	1000	1013	1015	1006	986	958	925	888	848	810	772	736	703	676	[illegible]	625	[illegible]
2100	756	812	864	908	944	969	984	988	982	967	945	917	887	854	821	790	759	733	707	683	660
2200	671	729	786	838	883	919	948	965	972	969	960	943	921	896	868	841	813	789	765	741	718
2300	587	645	705	763	818	865	905	936	957	967	969	963	949	933	912	889	865	843	820	798	776
2400	505	563	626	689	751	808	860	902	936	959	973	977	974	965	950	933	913	894	873	851	832
2500	427	483	546	614	682	748	810	864	910	944	970	986	992	991	984	972	957	941	923	905	885
2600	355	408	472	541	613	687	758	823	880	926	963	989	1004	1012	1012	1006	996	983	968	952	935
2700	291	339	401	472	548	627	706	779	846	902	949	986	1010	1026	1033	1033	1028	1019	1007	994	978
2800	234	278	336	406	484	567	652	733	808	874	931	976	1010	1033	1047	1053	1054	1049	1041	1030	1017
2900	187	225	278	346	425	511	600	686	768	842	907	960	1002	1034	1054	1066	1072	1071	1067	1059	1050
3000	152	182	231	296	373	459	550	640	727	807	880	940	989	1027	1053	1071	1082	1085	1084	1081	1074
3100	127	150	194	253	327	411	503	595	686	771	848	915	970	1013	1046	1069	1084	1091	1095	1094	1090
3200	116	130	166	220	290	371	460	553	645	733	814	885	944	993	1030	1058	1078	1089	1096	1099	1099
3300	115	114	150	197	260	336	423	513	605	694	776	851	914	974	1008	1040	1064	1079	1089	1096	1099
3400	128	126	145	183	239	309	391	478	567	655	738	814	879	937	979	1015	1043	1061	1075	1084	1091
3500	152	141	151	181	229	291	365	446	532	617	701	774	841	898	945	983	1015	1036	1053	1065	1075
3600	188	169	169	191	228	281	347	421	500	581	659	733	799	857	906	946	979	1003	1022	1037	1050
3700	235	208	200	210	238	280	336	401	472	547	621	691	755	813	862	903	938	963	986	1003	1019
3800	291	257	240	240	256	288	332	387	450	516	584	649	711	766	814	856	892	919	943	963	980
3900	357	316	290	280	285	304	337	381	432	490	549	609	665	717	764	805	841	869	894	916	935
4000	429	383	349	328	322	329	349	380	420	467	518	570	621	669	713	752	788	816	842	866	887
4100	506	456	414	384	366	362	368	386	414	450	491	534	579	621	662	700	734	761	788	812	834
4200	588	534	485	447	418	401	395	399	414	438	467	501	538	575	611	646	678	705	731	755	778
4300	673	616	562	515	476	447	428	419	420	432	450	473	501	531	562	593	623	648	673	697	720
4400	757	700	641	587	539	498	466	444	432	431	437	450	469	492	517	542	569	593	617	639	663
4500	841	783	721	661	605	553	509	474	450	435	429	432	441	456	475	496	518	539	566	583	606

Applied Constant: + 700.

The unit in this Table equals $0^d.0001$.

SATELLITE IV

Approximate Tables of Conjunction

V *continued* **Equation of Geocentric Conjunction** **Arguments** β **Oc, Tr**

β	200^{d}	210^{d}	220^{d}	230^{d}	240^{d}	250^{d}	260^{d}	270^{d}	280^{d}	290^{d}	300^{d}	310^{d}	320^{d}	330^{d}	340^{d}	350^{d}	360^{d}	370^{d}	380^{d}	390^{1}	400^{d}
0	7 1	7 4	747	773	799	8 7	856	885	913	938	957	971	9/6	973	958	934	900	857	806	751	694
100	644	666	690	716	745	776	809	844	878	912	94	968	986	996	995	983	961	9 8	884	834	778
200	587	609	633	660	689	7 3	760	799	840	88	922	959	989	101	1025	10 6	1 15	993	958	914	862
300	533	554	578	604	634	669	709	752	799	848	897	944	987	10 2	1 48	1 63	1064	1053	10 7	989	941
400	48	502	5 4	551	58	616	658	7 4	756	811	868	9 5	978	10 5	1064	1091	1105	11 5	1 89	1059	1016
500	436	454	474	5 0	͵30	565	608	656	711	77	835	901	963	10	1 73	111	1138	1149	1143	1121	1084
600	395	411	43	453	481	516	559	609	666	730	800	87	943	1011	1 73	1124	1161	1184	1188	1176	1145
700	361	374	391	41	438	472	514	564	6	689	76	840	918	995	1065	11 7	1175	1 08	1222	1 17	1195
800	333	345	358	377	401	43	47	5	580	648	7 4	805	888	971	1050	11 1	1178	12 1	1245	1250	1235
900	314	3	333	349	370	398	436	483	540	607	684	767	855	943	10 8	1106	1172	1 24	1259	1271	1264
1000	303	307	315	3 8	346	371	405	449	504	569	645	729	818	908	999	1082	1156	1215	1258	1279	1 81
1100	3 0	301	305	314	329	35	380	420	47	534	608	690	779	871	964	1051	1130	1196	1246	1276	1 86
1200	3 5	303	304	310	3	336	363	398	444	50	57	651	737	8 9	9 3	101	1096	1167	1223	1 61	1279
1300	319	314	311	31	318	331	352	381	422	474	539	61	695	784	877	967	1052	1127	1189	1 33	1259
1400	341	33	3 6	3 4	3 5	333	348	371	406	451	509	577	654	738	828	916	1002	1079	1144	1195	12 8
1500	370	358	349	343	340	34	351	369	395	433	483	543	613	691	775	861	945	1023	1091	1145	1186
1600	406	392	379	369	362	359	362	37	391	4 0	462	513	574	644	722	802	883	960	1030	1089	1134
1700	449	432	417	403	39	384	381	384	395	414	446	486	538	598	667	740	816	890	960	1022	1071
1800	496	478	460	443	4 8	415	405	401	404	413	434	465	505	554	613	679	748	818	886	948	100
1900	48	5 8	508	488	470	452	437	4 5	419	419	429	447	476	514	56	617	679	743	808	87	926
2000	603	581	560	538	515	494	473	455	44	431	430	436	45	478	514	558	610	667	728	789	846
2100	660	638	615	591	566	540	514	489	467	448	436	43	433	446	469	502	543	592	647	705	762
2200	718	695	67	646	619	590	559	5 8	498	471	447	430	420	419	429	449	479	519	567	621	677
2300	776	753	7 9	7 3	674	642	607	57	535	498	465	435	412	398	395	402	42	45	490	539	593
2400	832	809	786	759	7 9	696	657	617	573	529	486	446	411	384	367	361	367	386	418	460	511
2500	885	864	841	814	784	749	709	664	616	564	51	462	416	376	346	3 7	321	329	351	387	433
2600	935	915	893	867	837	8 1	759	712	659	602	543	483	426	375	33	300	283	79	29	319	360
2700	978	961	943	916	887	85	808	760	7 4	64	576	509	443	382	327	284	253	239	241	61	95
2800	1017	1002	984	961	933	899	856	807	749	683	613	538	465	394	329	74	33	206	00	210	238
2900	1050	1037	10	1 00	975	94	901	851	79	725	651	57	492	413	339	274	3	186	168	168	190
3000	1 74	1064	1 51	1033	1010	980	940	89	834	767	690	608	5 3	438	357	284	23	178	150	14	154
3100	1090	1 85	1075	1060	1039	101	975	928	873	806	7 9	646	557	468	381	301	23	178	14	125	128
3200	1 99	1095	1089	1 78	1061	1037	1 04	961	908	843	767	684	595	504	412	3 7	253	190	146	1 1	116
3300	1 99	1099	1096	1088	1075	1 55	10 7	988	938	877	8 4	7 3	635	543	450	361	281	213	161	128	115
3400	1091	1094	1095	1 90	108	1066	104	10 9	964	908	840	76	676	586	49	4 2	318	246	187	148	126
3500	1075	1081	1085	1084	1080	107	1051	1 3	984	935	87	8 0	719	631	539	45	364	288	225	178	150
3600	1050	106	1067	1071	1 71	1 65	1052	1030	999	956	901	835	760	678	59	502	417	340	272	220	185
3700	1 19	1031	104	1049	1053	1053	1046	1031	1006	972	9 5	867	8 1	725	64	559	476	398	328	7	231
3800	980	995	10 9	10 0	1 9	1033	1033	10 5	1006	98	944	897	838	772	696	619	539	463	393	333	287
3900	935	953	970	983	997	1006	1 1	1011	1003	987	958	9 1	874	817	751	680	606	534	465	403	351
4000	887	906	924	94	959	973	985	99	99	985	968	94	905	860	804	742	675	607	540	478	423
4100	834	855	875	896	915	935	95	966	975	977	97	957	933	899	854	8 3	745	68	619	557	500
4200	778	800	8	845	868	891	914	934	95	964	969	967	955	934	902	862	813	759	700	639	582
4300	7 0	743	766	791	816	843	871	898	9 3	945	961	970	972	964	945	917	879	833	78	723	666
4400	663	685	708	734	762	793	8 4	857	890	9 1	948	969	983	989	983	968	942	905	860	807	751
4500	606	6 8	65	678	708	740	776	813	853	892	929	96	989	1007	1015	1 13	998	972	934	888	834

Appli d C t t +700 Th it q l oo

SATELLITE IV

Approximate Tables of Conjunction

VI Equation of Geocentric Conjunction — Arguments β, γ — Oc., Tr.

γ \ β	0^d	20^d	40^d	60^d	80^d	100^d	120^d	140^d	160^d	180^d	200^d	220^d	240^d	260^d	280^d	300^d	320^d	340^d	360^d	380^d	400^d
d 0	300	339	370	389	395	388	373	353	334	316	300	282	265	246	227	211	205	212	232	264	302
10	264	305	342	372	389	395	385	372	357	340	325	307	288	267	241	218	201	197	205	231	266
20	229	271	314	353	380	394	396	389	377	363	348	331	312	287	257	227	200	184	183	200	231
30	196	238	286	332	369	393	404	403	395	384	370	354	335	308	275	238	202	175	164	172	198
40	167	207	257	310	356	389	408	414	411	402	391	376	357	330	293	250	207	170	148	148	168
50	141	179	230	288	341	382	410	421	423	418	408	396	378	350	312	264	215	169	138	128	142
60	121	153	205	266	325	374	407	425	432	430	423	413	396	369	330	280	225	172	131	114	121
70	106	132	183	245	309	363	402	425	437	439	434	426	411	386	347	296	237	178	130	105	106
80	95	117	163	226	292	350	394	422	437	443	441	435	423	400	363	313	251	188	134	101	95
90	92	106	149	209	276	336	383	416	434	443	444	441	431	412	377	328	266	201	142	103	92
100	93	102	138	194	259	320	370	405	426	439	443	443	436	420	389	343	284	218	156	112	93
110	102	103	133	183	244	304	355	392	416	430	437	440	437	425	398	357	301	237	174	125	101
120	116	111	132	176	231	287	337	375	401	418	427	433	433	425	405	369	318	257	195	145	115
130	136	123	136	172	219	272	319	357	384	402	414	422	426	423	408	378	334	279	220	168	135
140	160	141	146	171	211	257	300	337	364	384	397	407	415	416	407	386	350	301	247	195	159
150	188	164	160	174	204	243	281	316	342	363	377	390	400	406	404	391	364	324	275	225	187
160	220	191	177	182	201	231	264	294	319	340	355	369	382	393	398	394	377	345	304	259	219
170	255	220	198	192	201	222	247	273	295	316	332	347	363	378	389	393	386	366	332	293	253
180	291	253	223	207	203	214	231	252	272	291	307	324	341	360	377	390	394	384	361	327	289
190	326	286	250	221	208	209	218	233	249	267	283	300	318	341	363	384	398	400	387	360	325
200	361	320	279	242	217	206	207	215	228	243	258	275	294	319	347	376	400	413	411	392	360
210	394	353	307	262	228	207	199	200	209	220	235	252	271	298	330	365	399	423	431	420	392
220	426	386	336	284	240	210	193	189	194	202	214	229	248	276	312	353	395	429	448	446	424
230	452	415	363	306	254	216	191	181	181	186	195	209	227	256	294	339	388	431	460	467	450
240	474	441	389	328	270	224	192	176	170	173	180	191	208	236	274	324	379	429	467	483	473
250	491	462	412	349	287	235	197	174	164	163	168	177	192	219	256	308	367	424	469	494	490
260	503	479	432	369	304	247	204	177	163	158	160	167	180	203	240	292	353	415	468	499	503
270	510	491	447	386	321	251	215	183	165	157	158	161	170	191	226	276	338	402	460	498	510
280	508	498	459	402	338	276	227	192	171	160	157	158	164	182	214	260	321	387	448	491	508
290	501	498	465	414	353	292	242	202	181	167	162	160	162	176	205	246	304	369	431	479	501
300	488	492	468	422	366	308	258	220	195	179	170	165	165	174	197	234	287	349	411	461	489
310	470	480	465	428	378	324	276	238	212	193	183	175	171	176	193	224	271	327	387	438	471
320	447	464	457	429	387	339	294	258	231	211	198	189	182	182	193	215	254	305	360	412	448
330	420	442	445	427	394	353	313	279	253	231	217	206	196	191	195	210	240	283	333	383	422
340	388	417	428	420	398	366	331	300	275	254	239	225	213	203	200	207	227	261	304	350	390
350	354	388	407	410	399	376	349	321	299	277	262	247	232	218	208	207	217	240	275	316	356
360	319	356	383	397	397	384	365	343	322	303	287	270	253	235	220	209	208	221	246	282	321
370	283	322	357	381	392	390	379	362	345	327	311	294	275	254	233	214	203	204	220	248	285
380	247	288	329	363	385	393	391	380	366	351	336	319	299	276	249	221	200	190	195	216	249
390	214	255	301	344	375	393	400	396	385	373	359	342	323	297	266	232	200	180	174	187	216
400	182	223	272	322	364	391	406	408	403	393	380	365	346	319	284	244	203	173	156	160	184

Applied Constant: + 300. The unit equals $0^d.0001$.

SATELLITE IV

Approximate Tables of Conjunction

Equations of Conjunction

VII

δ	Equation	Δ 0^d (3)	δ	Equation	Δ 0^d (3)
d 0 0	0 0400	− 15	10 0	0 06 8	+ 12
2	371	15	2	651	11
4	341	15	4	673	11
6	312	14	6	694	10
8	84	14	8	71	9
1 0	256	14	11 0	7 9	8
1 2	0 0 29	− 13	11 2	0 0744	+ 7
4	3	13	4	757	6
6	178	12	6	768	5
8	155	11	8	777	4
2 0	133	11	12 0	784	3
2 2	0 011	− 10	12 2	0 788	+ 2
4	93	9	4	791	+ 1
6	76	8	6	791	− 1
8	60	7	8	789	2
3 0	47	6	13 0	785	3
3 2	0 0035	− 5	13 2	0 0778	− 4
4	5	4	4	769	5
6	18	3	6	759	6
8	13		8	746	7
4 0	10	− 1	14 0	731	8
4 2	0 0009	0	14 2	0 0715	− 9
4	11	+ 1	4	697	10
6	14	2	6	677	11
8	0	3	8	655	11
5 0	8	4	15 0	632	12
5 2	0 0 38	+ 5	15 2	0 608	− 12
4	50	7	4	583	13
6	64	8	6	556	14
8	80	9	8	5 9	14
6 0	98	9	16 0	501	14
6 2	0 0117	+ 10	16 2	0 047	− 15
4	138	11	4	443	15
6	161	12	6	413	15
8	185	1	8	384	15
7 0	210	13	17 0	355	15
7 2	0 0237	+ 14	17 2	0 03 5	− 15
4	64	14	4	297	14
6	9	14	6	269	14
8	32	14	8	41	14
8 0	349	15	18 0	215	13
8 2	0 0378	+ 15	18 2	0190	− 12
4	408	15	4	166	12
6	438	5	6	143	11
8	467	14	8	121	11
9 0	495	14	19 0	1 1	10
9 2	0 05 3	+ 14	19 2	0 0083	− 9
4	551	14	4	67	8
6	578	13	6	53	7
8	604	13	8	40	6
10 0	0 0628	+ 1	20 0	0 0029	− 5

Appl d C t t + ∞

VIII

	Equation
d 0 0	d 0 100
0 4	104
0 8	108
1 2	111
1 6	113
2 0	114
2 4	0 0113
2 8	11
3 2	109
3 6	106
4 0	10
4 4	0 0098
4 8	94
5 2	90
5 6	88
6 0	86
6 4	0 0086
6 8	88
7 2	9
7 6	93
8 0	97
8 4	0 0101
8 8	105
9 2	108
9 6	111
10 0	113
10 4	0 0114
10 8	113
11 2	112
11 6	109
12 0	105
12 4	0 0101
12 8	97
13 2	93
13 6	90
14 0	88
14 4	0 0086
14 8	86
15 2	88
15 6	90
16 0	94
16 4	0 0098
16 8	102
17 2	105
17 6	108
18 0	111
18 4	0 0113
18 8	114
19 2	113
19 6	112
20 0	0 0108

Appli d C ta t + ∞

SATELLITE IV

Tables

of the

Longitude on Jupiter's Orbit, Variation of the Radius Vector, and the Latitude

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

IX Values of Mean Longitude and the Arguments at Epoch

1	2	3	4	5	6	7	8	9	10	11
Date	Mean Long.	A	B	C	D	E	F	G	H	α
	°	d	d	d	d	d	d	d	d	d
1850	141.80383	0.85	1.63	7.110	13.405	11.78520	43.215	7.62	3.407	1785.1
1851	95.25885	1.73	1.23	8.935	11.128	9.59515	6.951	4.04	15.247	2150.2
***1852**	48.71386	0.63	0.84	10.761	8.852	7.40510	20.845	0.46	10.270	2515.4
1853	23.73998	0.54	1.44	1.064	7.576	6.21506	35.739	6.26	6.294	2881.5
1854	337.19500	1.42	1.04	2.890	5.300	4.02501	49.634	2.68	1.317	3246.5
1855	290.65001	0.32	0.65	4.715	3.024	1.83497	13.370	7.48	13.157	3611.7
***1856**	244.10503	1.20	0.25	6.541	0.748	16.33538	27.264	3.90	8.180	3976.4
1857	219.13115	1.10	0.85	9.367	16.166	15.14533	42.158	1.33	4.204	9.7
1858	172.58617	0.00	0.46	11.193	13.890	12.95529	5.895	6.12	16.044	374.6
1859	126.04118	0.88	0.06	0.495	11.614	10.76524	19.789	2.55	11.067	739.6
***1860**	79.49620	1.76	4.18	2.321	9.338	8.57520	33.683	7.34	6.090	1104.7
1861	54.52232	1.66	0.27	5.147	8.062	7.38515	48.577	4.77	2.114	1470.9
1862	7.97734	0.57	4.38	6.973	5.786	5.19510	12.314	1.19	13.954	1836.2
1863	321.43235	1.45	3.99	8.799	3.510	3.00506	26.208	5.99	8.977	2201.2
***1864**	274.88737	0.35	3.59	10.624	1.234	0.81501	40.102	2.41	4.000	2565.9
1865	249.91349	0.25	4.19	0.927	16.652	16.31542	4.838	8.21	0.024	2931.3
1866	203.36851	1.13	3.80	2.753	14.376	14.12538	18.733	4.63	11.864	3295.8
1867	156.82352	0.03	3.40	4.579	12.100	11.93533	32.627	1.05	6.887	3659.9
***1868**	110.27854	0.91	3.00	6.404	9.824	9.74529	46.521	5.85	1.910	4024.6
1869	85.30466	0.81	3.61	9.230	8.548	8.55524	11.257	3.27	14.751	58.1
1870	38.75968	1.69	3.21	11.056	6.271	6.36520	25.152	8.07	9.774	423.5
1871	352.21469	0.60	2.81	0.359	3.995	4.17515	39.046	4.49	4.797	789.2
***1872**	305.66971	1.48	2.42	2.184	1.719	1.98511	2.782	0.91	16.637	1155.0
1873	280.69583	1.38	3.02	5.010	0.443	0.79506	17.676	6.71	12.661	1521.6
1874	234.15085	0.28	2.62	6.836	14.861	15.29547	31.571	3.13	7.684	1886.9
1875	187.60586	1.16	2.23	8.662	12.585	13.10542	45.465	7.93	2.707	2251.8
***1876**	141.06088	0.06	1.83	10.488	10.309	10.91538	9.201	4.35	14.547	2616.2
1877	116.08700	1.94	2.43	0.790	9.033	9.72533	24.095	1.77	10.571	2981.5
1878	69.54202	0.84	2.04	2.616	6.757	7.53529	37.990	6.57	5.594	3345.8
1879	22.99703	1.73	1.64	4.442	4.481	5.34524	1.726	2.99	0.617	3710.2
***1880**	336.45205	0.63	1.24	6.268	2.205	3.15520	15.620	7.79	12.457	4075.1
1881	311.47817	0.53	1.85	9.093	0.929	1.96515	30.514	5.21	8.480	108.8
1882	264.93319	1.41	1.45	10.919	15.347	16.46556	44.409	1.64	3.504	474.4
1883	218.38820	0.31	1.05	0.222	13.071	14.27552	8.145	6.43	15.344	840.0
***1884**	171.84322	1.19	0.66	2.048	10.795	12.08547	22.039	2.86	10.367	1205.4
1885	146.86934	1.09	1.26	4.873	9.519	10.89543	36.933	0.28	6.390	1571.5
1886	100.32436	1.97	0.86	6.699	7.243	8.70538	0.670	5.08	1.414	1936.3
1887	53.77937	0.88	0.47	8.525	4.967	6.51533	14.564	1.50	13.254	2300.9
***1888**	7.23439	1.76	0.07	10.351	2.690	4.32529	28.458	6.30	8.277	2665.5
1889	342.26051	1.66	0.67	0.653	1.414	3.13524	43.352	3.72	4.300	3031.2
1890	295.71553	0.56	0.28	2.479	15.833	0.94520	7.089	0.14	16.141	3396.1
1891	249.17054	1.44	4.39	4.305	13.556	15.44561	20.983	4.94	11.164	3761.4
***1892**	202.62556	0.34	3.99	6.131	11.280	13.25556	34.877	1.36	6.187	4126.8
1893	177.65168	0.24	4.60	8.957	10.004	12.06552	49.771	7.16	2.210	160.6
1894	131.10670	1.12	4.20	10.782	7.728	9.87547	13.508	3.58	14.051	526.0
1895	84.56171	0.03	3.80	0.085	5.452	7.68543	27.402	0.00	9.074	891.2
***1896**	38.01673	0.91	3.41	1.911	3.176	5.49538	41.296	4.80	4.097	1256.1
1897	13.04285	0.81	4.01	4.737	1.900	4.30533	6.032	2.22	0.120	1621.9
1898	326.49787	1.69	3.61	6.562	16.318	2.11529	19.927	7.02	11.961	1986.5
1899	279.95288	0.59	3.22	8.388	14.042	16.61570	33.821	3.44	6.984	2351.2
1900	233.40790	1.47	2.82	10.214	11.766	14.42565	47.715	8.24	2.007	2716.0
Periods	...	1.98	4.51	12.523	16.694	16.69046	50.158	8.38	16.817	4332.6

Constant applied to each entry in Column 2: −1°.00000.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

IX Values of Mean Longitude and the Arguments at Epoch

	3	4	5	6	7	8	9		
I	J	K	L	M	N	O	P	Q	R
	d	d						d	
1850	8 68994	6 74	5 61	4 7937	535	6 53	16 49	15 49	1 83
1851	6 53158	4 599	3 51	6659	0 496	1 52	10 4	14 74	15 0
1852	4 373 3	456	1 41	0 538	15 140	13 33	3 59	13 99	11 43
1853	3 1487	1 313	0 3	16 9 8	14 101	9 3	15	14 4	8 85
1854	1 05651	7 514	6 56	13 9699	1 62	4 31	8 57	13 49	5 7
1855	15 58717	5 371	4 46	11 84 0	10 0 3	16 1	1	1 74	1 69
1856	13 4 881	3 2 7	36	9 714	7 984	11 11	1 55	11 99	14 87
1857	1 27 46	2 084	1 6	8 5863	6 945	7 1	7 10	1 4	1 29
1858	1 1210	8 285	7 51	6 4584	4 906	2 9	0 65	11 49	8 71
1859	7 95374	6 14	5 41	4 3305	867	13 90	11 09	1 74	5 13
*1860	5 79539	3 999	3 31	0 7	0 828	8 89	4 63	9 99	1 56
1861	4 63703	856	1	1 0748	16 473	4 88	16 07	10 25	15 73
1862	47867	0 713	0 11	15 6346	14 433	16 69	9 6	9 50	12 15
1863	0 3 3	6 914	6 36	13 5067	12 394	11 69	3 17	8 75	8 57
1864	14 85 97	4 771	4 6	11 3788	10 355	6 68	13 60	8 00	5 00
1865	13 69 62	3 6 7	3 16	10 509	9 316	67	8 15	8 25	2 42
1866	11 534 6	1 484	1 6	8 1231	7 277	14 48	1 70	7 50	15 59
1867	9 37590	7 685	7 30	5 9952	5 38	9 47	1 13	6 75	12 02
*1868	7 1755	5 542	5 21	3 8673	3 199	4 46	5 68	6 00	8 44
1869	6 05919	4 399	3 11	2 7395	160	0 45	0 3	6 25	5 86
1870	3 90083	56	01	0 6116	0 121	12 26	10 66	5 50	2 28
1871	1 74248	0 113	8 25	15 1714	14 766	7 25	4 1	4 75	15 46
*1872	16 27314	6 314	6 15	13 0435	12 7 7	2 24	14 64	4 00	11 88
1873	15 11478	5 171	5 06	11 9156	11 688	15 05	9 19	4 25	9 30
1874	1 95642	3 0 8	2 96	9 7877	9 649	10 04	74	3 50	5 72
1875	10 79806	0 884	0 86	7 6599	7 610	5 3	13 18	2 75	2 14
*1876	8 63971	7 085	7 10	5 5320	5 571	0 02	6 72	2 00	15 3
1877	7 48135	5 942	6 00	4 4041	4 53	12 83	1 7	2 25	12 74
1878	5 3 299	3 799	3 91	763	493	7 83	11 71	1 50	9 16
1879	3 16464	1 656	1 81	0 1484	0 454	2 8	5 26	0 75	5 59
*1880	1 00628	7 857	8 05	14 7082	15 098	14 63	15 69	0 00	2 01
1881	16 53694	6 714	6 95	13 5803	14 059	10 62	10 24	0 26	16 18
1882	14 37858	4 571	4 85	11 4524	12 0 0	5 61	3 79	16 13	12 61
1883	1 0 3	4 8	2 76	9 3245	9 981	60	14 2	15 38	9 03
*1884	1 06187	0 85	0 66	7 1967	7 942	1 41	7 77	14 63	5 45
1885	8 90351	7 486	7 90	6 0688	6 903	8 40	2 32	14 88	2 87
1886	6 74515	5 34	5 8	3 94 9	4 864	3 39	12 75	14 13	16 05
1887	4 58680	3 199	3 70	1 8131	825	15 2	6 30	13 38	12 47
*1888	4 844	1 56	1 60	16 37 8	786	10 19	16 73	1 63	8 89
1889	1 70 8	8 57	0 51	15 449	16 431	6 18	11 8	12 88	6 31
1890	15 80074	6 114	6 75	13 1171	14 39	1 17	4 83	12 13	2 73
1891	13 64239	3 971	4 65	10 9892	1 353	12 98	15 27	11 39	15 91
*1892	11 484 3	1 8 8	55	8 8613	10 314	7 97	8 81	10 64	12 33
1893	10 3 567	0 685	1 45	7 7335	9 75	3 97	3 36	10 89	9 75
1894	8 1673	6 886	7 70	5 6 56	7 36	15 78	13 80	10 14	6 18
1895	6 00896	4 743	5 60	3 4777	5 197	10 77	7 35	9 39	2 60
1896	3 85060	599	3 50	1 3499	3 157	5 76	0 90	8 64	15 77
1897	2 692 4	1 456	40	0	118	1 75	1 33	8 89	13 19
1898	53389	7 657	0 3	14 7817	0 79	13 56	5 88	8 14	9 62
1899	15 06455	5 514	6 55	1 6539	14 724	8 55	16 31	7 39	6 04
1900	12 90619	3 371	4 45	10 5 6	12 685	3 54	9 86	6 64	46
Pe iods	16 689	8 344	8 34	16 6876	16 684	16 82	16 88	16 6	16 75

T bt i th T L git d d dt J pit O b t th t i f C lum m t b ppl m ted by th q ti f T bl XII XXXII

Tables of Longitude, Latitude, and Radius Vector

IX *continued* Values of Mean Longitude and the Arguments at Epoch

1 Date	2 Mean Long.	3 A	4 B	5 C	6 D	7 E	8 F	9 G	10 H	11
1900	233.40790	1.47	2.82	10.214	11.766	14.42565	47.715	8.24	[illegible]	2716
1901	186.86291	0.37	2.42	12.040	9.190	12.23561	11.451	4.66	13.842	3081.1
1902	140.31793	1.25	2.03	1.342	7.214	10.04556	25.346	1.08	8.871	3446.4
1903	93.77294	0.15	1.63	3.168	4.938	7.85552	39.240	5.88	3.894	3811.6
*1904	47.22796	1.03	1.23	4.994	2.662	5.66547	2.976	2.40	15.734	4176.6
1905	22.25408	0.94	1.84	7.820	1.386	3.47543	17.820	8.40	11.757	209.9
1906	335.70909	1.82	1.44	9.646	15.804	2.28538	31.764	4.54	6.780	574.7
1907	289.16411	0.72	1.04	11.471	13.528	0.09534	45.659	0.95	1.804	940.5
*1908	242.61912	1.60	0.65	0.774	11.252	14.59575	9.395	5.74	13.744	1304.4
1909	217.64525	1.50	1.25	3.600	9.976	13.40571	24.279	[illegible]	9.667	1670.4
1910	171.10026	0.40	0.85	5.426	7.699	11.21566	38.174	7.96	4.690	2035.4
1911	124.55528	1.28	0.46	7.251	5.423	9.02561	1.920	4.39	16.531	2400.6
*1912	78.01029	0.18	0.06	9.077	3.147	6.83556	15.814	0.81	11.554	2765.7
1913	53.03642	0.09	0.66	11.903	1.871	5.64552	30.708	6.61	7.577	3131.8
1914	6.49143	0.97	0.27	1.206	16.289	3.45547	44.602	3.03	3.600	3496.8
1915	319.94645	1.85	4.38	3.031	14.013	1.26543	8.339	7.84	14.441	3861.6
*1916	273.40146	0.75	3.98	4.857	11.737	15.76584	22.233	4.25	9.464	4226.4
1917	248.42759	0.65	0.08	7.683	10.461	14.57579	37.127	1.67	5.487	259.5
1918	201.88260	1.53	4.19	9.509	8.185	12.38575	0.863	6.47	1.510	624.5
1919	155.33762	0.43	3.79	11.335	5.909	10.19570	14.758	2.89	12.351	989.6
*1920	108.79263	1.31	3.40	0.637	3.633	8.00566	28.652	7.69	7.374	1354.8
1921	83.81876	1.21	4.00	3.463	2.357	6.81561	43.546	5.11	3.397	1721.1
1922	37.27377	0.12	3.60	5.289	0.081	4.62556	7.282	1.53	15.237	2086.5
1923	350.72879	1.00	3.21	7.115	14.499	2.43552	21.177	6.33	11.261	2451.3
*1924	304.18380	1.88	2.81	8.940	12.223	0.24547	35.071	2.75	7.284	2816.0
1925	279.20993	1.78	3.41	11.766	10.947	15.74588	49.965	0.17	2.307	3181.3
1926	232.66494	0.68	3.02	1.069	8.671	13.55584	13.701	4.97	13.147	3545.5
1927	186.11996	1.56	2.62	2.895	6.395	11.36579	27.596	1.39	8.171	3909.8
*1928	139.57497	0.46	2.22	4.720	4.118	9.17575	41.490	6.19	3.194	4274.5
1929	114.60110	0.36	2.83	7.546	2.842	7.98570	6.226	3.61	16.014	308.0
1930	68.05611	1.25	2.43	9.372	0.566	5.79566	20.120	0.03	11.057	673.6
1931	21.51113	0.15	2.03	11.198	14.984	3.60561	34.015	4.83	6.081	1040.3
*1932	334.96614	1.03	1.64	0.500	12.708	1.41557	47.909	1.26	1.104	1405.0
1933	309.99227	0.93	2.24	3.326	11.432	0.21552	12.645	7.05	13.944	1771.6
1934	263.44728	1.81	1.84	5.152	9.156	14.72593	26.539	3.48	8.967	2136.8
1935	216.90230	0.71	1.45	6.978	6.880	12.53589	40.434	8.27	3.990	2501.6
*1936	170.35731	1.59	1.05	8.804	4.604	10.34584	4.170	4.70	15.831	2866.0
1937	145.38344	1.49	1.65	11.629	3.328	9.15579	19.064	2.12	11.854	3231.2
1938	98.83845	0.40	1.26	0.932	1.052	6.96575	32.958	6.92	6.877	3595.4
1939	52.29347	1.28	0.86	2.758	15.470	4.77570	46.853	3.34	1.900	3960.0
*1940	5.74848	0.18	0.46	4.584	13.194	2.58566	10.589	8.14	13.741	4324.9
1941	340.77461	0.08	1.07	7.409	11.918	1.39561	25.483	5.56	9.764	358.7
1942	294.22962	0.96	0.67	9.235	9.642	15.89602	39.377	1.98	4.787	724.3
1943	247.68464	1.84	0.27	11.061	7.366	13.70598	3.114	6.78	16.628	1089.8
*1944	201.13965	0.74	4.39	0.364	5.090	11.51593	17.008	3.20	11.651	1455.1
1945	176.16578	0.64	0.48	3.189	3.814	10.32589	31.902	0.62	7.674	1821.1
1946	129.62079	1.52	0.08	5.015	1.537	8.13584	45.796	5.42	2.697	2185.9
1947	83.07581	0.43	4.20	6.841	15.956	5.94579	9.533	1.84	14.537	2550.5
*1948	36.53082	1.31	3.80	8.667	13.680	3.75575	23.427	6.64	9.561	2915.2
1949	11.55695	1.21	4.41	11.493	12.404	2.56570	38.321	4.06	5.584	3281.0
1950	325.01196	0.11	4.01	0.795	10.127	0.37566	2.057	0.48	0.607	3646.0
Periods	...	1.98	4.51	12.523	16.694	16.69046	50.158	8.38	16.817	4332.6

Constant applied to each entry in Column 2: − 1°.00000.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

IX *continued* Values of Mean Longitude and the Arguments at Epoch

	3	4	5	6	7	8	9		
I	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**
						d	d	d	d
1900	12 9 619	3 371	4 45	10 5 60	1 685	3 54	9 86	6 64	2 46
1901	10 74783	1 8	35	8 3981	10 646	15 35	3 41	5 89	15 64
1902	8 58948	7 429	5	6 7 3	8 607	10 34	13 84	5 14	1 06
1903	6 4311	5 86	6 50	4 14 4	6 568	5 33	7 39	4 39	8 48
1904	4 27 76	3 143	4 4	2 145	4 5 9	0 3	94	3 64	4 90
1905	3 11441	1 999	3 30	0 8866	3 490	13 13	12 37	3 89	2 32
1906	0 956 5	8 01	1 20	15 4464	1 450	8 12	5 92	3 14	15 50
1907	15 48671	6 057	7 45	13 3185	16 095	3 11	16 36	2 39	11 92
1908	13 32835	3 914	5 35	11 1907	14 056	14 9	9 91	1 64	8 34
1909	1 16999	2 771	4 5	10 06 8	13 017	10 9	4 45	1 89	5 76
1910	10 01164	0 628	15	7 9349	10 978	5 91	14 89	1 14	2 19
1911	7 853 8	6 8 9	0 05	5 8071	8 939	0 90	8 44	0 40	15 36
***1912**	5 69492	4 686	6 30	3 679	6 90	12 71	1 99	16 27	11 78
1913	4 53657	3 543	5 0	2 5513	5 861	8 70	13 4	16 52	9 1
1914	2 37821	1 4 0	3 10	0 4 34	3 82	3 69	6 97	15 77	5 63
1915	0 21985	7 601	1 00	14 983	1 783	15 50	0 5	15 0	2 05
1916	14 75 51	5 457	7 24	1 8553	16 428	10 49	10 95	14 27	15 22
1917	13 59215	4 314	6 14	11 7275	15 389	6 48	5 50	14 52	12 65
1918	11 43380	171	4 05	9 5996	13 350	1 47	15 93	13 77	9 07
1919	9 27544	00 8	1 95	7 4717	11 311	13 28	9 48	13 02	5 49
1920	7 11708	6 229	8 19	5 3438	9 272	8 27	3 03	12 28	1 91
1921	5 95873	5 086	7 09	4 2160	8 233	4 6	14 46	12 53	16 09
1922	3 80037	2 943	4 99	2 0881	6 194	16 07	8 01	11 78	1 51
1923	1 64 01	0 800	2 90	16 6479	4 155	11 06	1 56	11 03	8 93
***1924**	16 17 67	7 01	0 80	14 5 00	2 115	6 06	12 00	10 28	5 35
1925	15 0143	5 858	8 4	13 3921	1 077	05	6 54	10 53	2 78
1926	12 85596	3 714	5 94	11 2643	15 721	13 86	0 09	9 78	15 95
1927	10 69760	1 571	3 84	9 1364	13 68	8 85	10 53	) 03	1 37
1928	8 53924	7 772	1 75	7 0085	11 643	3 84	4 08	8 8	8 79
1929	7 38089	6 629	0 65	5 8806	10 604	16 65	15 51	8 53	6 22
1930	5 22 53	4 486	6 89	3 7528	8 565	11 64	9 06	7 78	64
1931	3 06417	343	4 79	1 6249	6 526	6 63	2 61	7 03	15 81
***1932**	0 90582	0 00	69	16 1847	4 487	1 6	13 04	6 28	12 24
1933	16 43648	7 401	1 60	15 0568	3 448	14 43	7 59	6 53	9 66
1934	14 7812	5 58	7 84	12 9 89	1 409	9 4	1 14	5 78	6 08
1935	1 11976	3 115	5 74	10 8011	16 054	4 41	11 57	5 03	2 50
***1936**	9 96141	971	3 64	8 673	14 015	16 2	5 12	4 8	15 68
1937	8 80305	8 17	54	7 5453	1 976	1 1	16 55	4 53	13 10
1938	6 64469	6 0 9	0 45	5 4174	10 937	7 20	10 10	3 78	9 52
1939	4 48633	3 886	6 69	3 896	8 898	2 20	3 65	3 03	5 94
1940	2 32798	1 743	4 59	1 1617	6 858	14 00	14 09	29	2 36
1941	1 16962	0 600	3 49	0 0338	5 819	10 00	8 63	2 54	16 54
1942	15 700 8	6 8 1	1 39	14 5936	3 78	4 99	2 18	1 79	12 96
1943	13 5419	4 658	7 64	1 4657	1 741	16 8	1 62	1 04	9 38
1944	11 38357	2 515	5 54	10 3378	16 386	11 79	6 17	0 29	5 81
1945	10 2521	1 371	4 44	9 10	15 347	7 8	0 72	0 54	3 23
1946	8 0668	7 572	34	7 08 1	13 308	2 77	11 15	16 41	16 4
1947	5 9 850	5 4 9	4	4 9542	11 69	14 58	4 70	15 66	12 82
1948	3 75014	3 286	6 49	8 64	9 230	9 57	15 13	14 91	9 25
1949	2 59178	143	5 39	1 6985	8 191	5 56	9 68	15 16	6 67
1950	0 4334	0 00	3 9	16 583	6 15	0 55	3 3	14 42	3 9
P riod	16 6890	8 344	8 34	16 6876	16 684	16 8	16 88	16 62	16 75

T bt m tl 1 L git d d dt J pt O bit th t i f C l m m t b ppl m t d by th q ti f T bl XII XXXII

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

IX *continued* Values of Mean Longitude and the Arguments at Epoch

1	2	3	4	5	6	7	8	9	10	11
Date	Mean Long.	A	B	C	D	E	F	G	H	α
	°	d	d	d	d	d	d	d	d	d
1950	325.01196	0.11	4.01	0.795	10.127	0.37566	2.057	0.48	0.607	3646.0
1951	278.46698	0.99	3.61	2.621	7.851	14.87607	15.952	5.28	12.447	4011.3
***1952**	231.92199	1.87	3.22	4.447	5.575	12.68602	29.846	1.70	7.471	44.0
1953	206.94812	1.77	3.82	7.273	4.299	11.49598	44.740	7.50	3.494	410.4
1954	160.40313	0.67	3.42	9.098	2.023	9.30593	8.476	3.92	15.334	775.6
1955	113.85815	1.55	3.03	10.924	16.441	7.11589	22.371	0.34	10.357	1140.7
***1956**	67.31316	0.46	2.63	0.227	14.165	4.92584	36.265	5.14	5.381	1505.6
1957	42.33928	0.36	3.23	3.053	12.889	3.73579	1.001	2.56	1.404	1871.4
1958	355.79430	1.24	2.84	4.878	10.613	1.54575	14.895	7.36	13.244	2236.0
1959	309.24931	0.14	2.44	6.704	8.337	16.04616	28.790	3.79	8.267	2600.8
***1960**	262.70433	1.02	2.04	8.530	6.061	13.85611	42.684	0.21	3.291	2965.8
1961	237.73045	0.92	2.65	11.356	4.785	12.66607	7.420	6.01	16.131	3332.0
1962	191.18547	1.80	2.25	0.658	2.509	10.47602	21.314	2.43	11.154	3697.2
1963	144.64048	0.70	1.85	2.484	0.233	8.28598	35.209	7.23	6.177	4062.3
***1964**	98.09550	1.59	1.46	4.310	14.651	6.09593	49.103	3.65	1.200	94.7
1965	73.12162	1.49	2.06	7.136	13.375	4.90589	13.839	1.07	14.041	460.5
1966	26.57664	0.39	1.66	8.962	11.099	2.71584	27.733	5.87	9.064	825.3
1967	340.03165	1.27	1.27	10.787	8.823	0.52580	41.628	2.29	4.087	1190.3
***1968**	293.48667	0.17	0.87	0.090	6.546	15.02621	5.364	7.09	15.928	1555.0
1969	268.51279	0.07	1.47	2.916	5.270	13.83616	20.258	4.51	11.951	1921.1
1970	221.96781	0.95	1.08	4.742	2.994	11.64612	34.152	0.93	6.974	2286.3
1971	175.42282	1.83	0.68	6.567	0.718	9.45607	48.047	5.73	1.997	2651.5
***1972**	128.87784	0.73	0.28	8.393	15.136	7.26602	11.783	2.15	13.837	3016.6
1973	103.90396	0.64	0.89	11.219	13.860	6.07598	26.677	7.95	9.861	3382.7
1974	57.35898	1.52	0.49	0.522	11.584	3.88593	40.571	4.37	4.884	3747.5
1975	10.81399	0.42	0.09	2.347	9.308	1.69589	4.308	0.79	16.724	4112.2
***1976**	324.26901	1.30	4.21	4.173	7.032	16.19630	18.202	5.59	11.747	144.4
1977	299.29513	1.20	0.30	6.999	5.756	15.00625	33.096	3.01	7.771	510.8
1978	252.75015	0.10	4.41	8.825	3.480	12.81621	46.990	7.81	2.794	875.1
1979	206.20516	0.98	4.02	10.651	1.204	10.62616	10.727	4.23	14.634	1240.2
***1980**	159.66018	1.86	3.62	12.476	15.622	8.43612	24.621	0.65	9.657	1605.6
1981	134.68630	1.77	4.22	2.779	14.346	7.24607	39.515	6.45	5.681	1972.0
1982	88.14132	0.67	3.83	4.605	12.070	5.05602	3.251	2.87	0.704	2337.3
1983	41.59633	1.55	3.43	6.431	9.794	2.86598	17.146	7.67	12.544	2702.2
***1984**	355.05135	0.45	3.03	8.256	7.518	0.67593	31.040	4.09	7.567	3066.6
1985	330.07747	0.35	3.64	11.082	6.242	16.17634	45.934	1.52	3.591	3431.9
1986	283.53249	1.23	3.24	0.385	3.965	13.98630	9.670	6.32	15.431	3796.0
1987	236.98750	0.13	2.84	2.211	1.689	11.79625	23.565	2.74	10.454	4160.3
***1988**	190.44252	1.01	2.45	4.036	16.108	9.60621	37.459	7.54	5.477	192.6
1989	165.46864	0.92	3.05	6.862	14.832	8.41616	2.195	4.96	1.501	558.8
1990	118.92366	1.80	2.65	8.688	12.555	6.22612	16.089	1.38	13.341	924.3
1991	72.37867	0.70	2.26	10.514	10.279	4.03607	29.984	6.18	8.364	1290.1
***1992**	25.83369	1.58	1.86	12.340	8.003	1.84603	43.878	2.60	3.387	1655.8
1993	0.85981	1.48	2.46	2.642	6.727	0.65598	8.614	0.02	16.228	2022.3
1994	314.31483	0.38	2.07	4.468	4.451	15.15639	22.508	4.82	11.251	2387.4
1995	267.76984	1.26	1.67	6.294	2.175	12.96634	36.403	1.24	6.274	2752.1
***1996**	221.22486	0.16	1.27	8.120	16.593	10.77630	0.139	6.04	1.297	3116.4
1997	196.25098	0.07	1.88	10.945	15.317	9.58625	15.033	3.46	14.138	3481.6
1998	149.70600	0.95	1.48	0.248	13.041	7.39621	28.927	8.26	9.161	3845.9
1999	103.16101	1.83	1.08	2.074	10.765	5.20616	42.822	4.68	4.184	4210.5
***2000**	56.61603	0.73	0.69	3.900	8.489	3.01612	6.558	1.10	16.024	242.9
Periods	...	1.98	4.51	12.523	16.694	16.69046	50.158	8.38	16.817	4332.6

Constant applied to each entry in Column 2 : $-1^{\circ}.00000$.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

IX *continued* **Values of Mean Longitude and the Arguments at Epoch**

	3	4	5	6	7	8	9		
I	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**
		d				d			d
1950	0 4334	0 000	3 9	16 583	6 15	0 55	3 23	14 42	3 09
1951	14 96408	6 01	1 19	14 1304	4 113	12 36	13 66	13 67	16 27
1952	12 8 573	4 58	7 44	12 025	2 074	7 35	7 1	12 9	12 69
1953	11 64737	915	6 34	10 8746	1 035	3 34	1 76	13 17	10 11
1954	9 48901	0 77	4 4	8 7468	15 679	15 15	1 19	12 42	6 53
1955	7 33066	6 973	14	6 6189	13 640	10 14	5 74	11 67	95
1956	5 17 30	4 829	0 04	4 4910	11 601	5 14	16 18	10 92	16 13
1957	4 01394	3 686	7 29	3 363	1 56	1 13	10 73	11 17	13 55
1958	1 85559	1 543	5 19	1 353	8 5 3	1 94	4 27	10 4	9 97
1959	16 386 4	7 744	3 09	15 7950	6 484	7 93	14 71	9 67	6 39
1960	14 789	5 601	0 99	13 6672	4 445	9	8 26	8 9	2 8
1961	13 06953	4 458	8 3	12 5393	3 406	15 73	2 81	9 17	0 24
1962	10 91117	2 315	6 14	10 4114	1 367	10 72	13 24	8 4	13 41
1963	8 75282	0 172	4 4	8 836	16 01	5 71	6 79	7 67	9 84
1964	6 59446	6 373	1 94	6 1557	13 973	0 70	0 34	6 92	6 26
1965	5 43610	5 30	0 84	5 0 78	12 934	13 51	11 77	7 17	3 68
1966	3 7775	3 086	7 08	2 9000	10 895	8 50	5 32	6 4	0 10
1967	1 11939	0 943	4 99	0 7721	8 856	3 49	15 75	5 67	13 8
***1968**	15 65005	7 144	2 89	15 3318	6 817	15 30	9 30	4 92	9 70
1969	14 49169	6 001	1 79	14 040	5 778	11 29	3 85	5 17	7 12
1970	12 33333	3 858	8 03	12 0761	3 739	6 28	14 28	4 43	3 54
1971	10 17498	1 715	5 93	9 948	1 700	1 28	7 83	3 68	16 7
***1972**	8 1662	7 916	3 83	7 8204	16 344	13 09	1 38	2 93	13 14
1973	6 85826	6 773	74	6 69 5	15 305	9 08	12 82	3 18	10 56
1974	4 69991	4 630	0 64	4 5646	13 266	4 07	6 36	43	6 98
1975	54155	2 486	6 88	2 4367	11 27	15 88	16 80	1 68	3 41
***1976**	0 38319	0 343	4 78	0 3089	9 188	10 87	10 35	0 93	16 58
1977	15 91385	7 544	3 68	15 8686	8 149	6 86	4 90	1 18	14 00
1978	13 75550	5 401	1 59	13 7408	6 110	1 85	15 33	0 43	10 43
1979	11 59714	3 258	7 83	11 61 9	4 071	13 66	8 88	16 30	6 85
***1980**	9 43878	1 115	5 73	9 4850	032	8 65	43	15 56	3 7
1981	8 2804	8 316	4 63	8 3572	0 993	4 64	13 86	15 81	0 69
1982	6 1 207	6 173	2 53	6 2293	15 638	16 45	7 41	15 06	13 87
1983	3 96371	4 03	0 44	4 1014	13 599	11 44	0 96	14 31	10 29
***1984**	1 8 535	1 887	6 68	1 9735	11 559	6 43	11 39	13 56	6 71
1985	0 64700	743	5 58	0 8457	10 520	2 42	5 94	13 81	4 13
1986	15 17766	6 944	3 48	15 4054	8 481	14 23	16 37	13 06	0 55
1987	13 1930	4 801	1 38	13 2776	6 442	9 23	9 92	12 31	13 73
***1988**	10 86094	2 658	7 63	11 1497	4 403	4 2	3 47	11 56	10 15
1989	9 70 59	1 515	6 53	10 0 18	3 364	0 21	14 91	11 81	7 57
1990	7 54423	7 716	4 43	7 8940	1 3 5	12 02	8 45	11 06	3 99
1991	5 38587	5 573	2 33	5 7661	15 970	7 01	2 00	10 31	0 4
1992	3 751	3 430	0 3	3 638	13 931	0	1 44	9 56	13 59
1993	6916	87	7 48	2 5103	1 89	14 81	6 99	9 81	11 01
1994	16 5998	144	5 38	0 38 5	1 853	9 80	0 54	9 06	7 44
1995	14 44146	6 345	3 8	14 94 2	8 814	4 79	10 97	8 31	3 86
1996	12 8310	4 201	1 18	12 8144	6 775	16 60	4 5	7 56	0 28
1997	11 12475	3 058	0 08	11 6865	5 736	12 59	15 95	7 81	14 45
1998	8 96639	915	6 33	9 5586	3 697	7 58	9 50	7 06	10 88
1999	6 80803	7 116	4 3	7 4307	1 658	57	3 05	6 32	7 3
2000	4 64968	4 973	2 13	5 30 9	16 302	14 38	13 48	5 57	3 72
Pe o ls	16 68902	8 344	8 34	16 6876	16 684	16 8	16 88	16 6	16 75

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SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

X Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8	9	10	11
Day	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	α
	°	d	d	d	d	d	d	d	d	d
Jan. 1	21.57111	1.00	1.00	1.000	1.000	1.00000	1.000	1.00	1.000	1.0
2	43.14222	0.02	2.00	2.000	2.000	2.00000	2.000	2.00	2.000	2.0
3	64.71333	1.02	3.00	3.000	3.000	3.00000	3.000	3.00	3.000	3.0
4	86.28444	0.04	4.00	4.000	4.000	4.00000	4.000	4.00	4.000	4.0
5	107.85555	1.04	0.49	5.000	5.000	5.00000	5.000	5.00	5.000	5.0
6	129.42666	0.06	1.49	6.000	6.000	6.00000	6.000	6.00	6.000	6.0
7	150.99777	1.06	2.49	7.000	7.000	7.00000	7.000	7.00	7.000	7.0
8	172.56888	0.08	3.49	8.000	8.000	8.00000	8.000	8.00	8.000	8.0
9	194.13999	1.08	4.49	9.000	9.000	9.00000	9.000	0.62	9.000	9.0
10	215.71110	0.11	0.98	10.000	10.000	10.00000	10.000	1.62	10.000	10.0
11	237.28221	1.11	1.98	11.000	11.000	11.00000	11.000	2.62	11.000	11.0
12	258.85332	0.13	2.98	12.000	12.000	12.00000	12.000	3.62	12.000	12.0
13	280.42443	1.13	3.98	0.477	13.000	13.00000	13.000	4.62	13.000	13.0
14	301.99553	0.15	0.47	1.477	14.000	14.00000	14.000	5.62	14.000	14.0
15	323.56664	1.15	1.47	2.477	15.000	15.00000	15.000	6.62	15.000	15.0
16	345.13775	0.17	2.47	3.477	16.000	16.00000	16.000	7.62	16.000	16.0
17	6.70886	1.17	3.47	4.477	0.306	0.30954	17.000	0.25	0.183	17.0
18	28.27997	0.19	4.47	5.477	1.306	1.30954	18.000	1.25	1.183	18.0
19	49.85108	1.19	0.96	6.477	2.306	2.30954	19.000	2.25	2.183	19.0
20	71.42219	0.21	1.96	7.477	3.306	3.30954	20.000	3.25	3.183	20.0
21	92.99330	1.21	2.96	8.477	4.306	4.30954	21.000	4.25	4.183	21.0
22	114.56441	0.23	3.96	9.477	5.306	5.30954	22.000	5.25	5.183	22.0
23	136.13552	1.23	0.44	10.477	6.306	6.30954	23.000	6.25	6.183	23.0
24	157.70663	0.25	1.44	11.477	7.306	7.30954	24.000	7.25	7.183	24.0
25	179.27774	1.25	2.44	12.477	8.306	8.30954	25.000	8.25	8.183	25.0
26	200.84885	0.27	3.44	0.954	9.306	9.30954	26.000	0.87	9.183	26.0
27	222.41996	1.27	4.44	1.954	10.306	10.30954	27.000	1.87	10.183	27.0
28	243.99107	0.30	0.93	2.954	11.306	11.30954	28.000	2.87	11.183	28.0
29	265.56218	1.30	1.93	3.954	12.306	12.30954	29.000	3.87	12.183	29.0
30	287.13329	0.32	2.93	4.954	13.306	13.30954	30.000	4.87	13.183	30.0
31	308.70440	1.32	3.93	5.954	14.306	14.30954	31.000	5.87	14.183	31.0
Feb. 1	330.27551	0.34	0.42	6.954	15.306	15.30954	32.000	6.87	15.183	32.0
2	351.84662	1.34	1.42	7.954	16.306	16.30954	33.000	7.87	16.183	33.0
3	13.41773	0.36	2.42	8.954	0.611	0.61909	34.000	0.49	0.366	34.0
4	34.98884	1.36	3.42	9.954	1.611	1.61909	35.000	1.49	1.366	35.0
5	56.55995	0.38	4.42	10.954	2.611	2.61909	36.000	2.49	2.366	36.0
6	78.13106	1.38	0.91	11.954	3.611	3.61909	37.000	3.49	3.366	37.0
7	99.70217	0.40	1.91	0.430	4.611	4.61909	38.000	4.49	4.366	38.0
8	121.27328	1.40	2.91	1.430	5.611	5.61909	39.000	5.49	5.366	39.0
9	142.84439	0.42	3.91	2.430	6.611	6.61909	40.000	6.49	6.366	40.0
10	164.41549	1.42	0.40	3.430	7.611	7.61909	41.000	7.49	7.366	41.0
11	185.98660	0.44	1.40	4.430	8.611	8.61909	42.000	0.12	8.366	42.0
12	207.55771	1.44	2.40	5.430	9.611	9.61909	43.000	1.12	9.366	43.0
13	229.12882	0.46	3.40	6.430	10.611	10.61909	44.000	2.12	10.366	44.0
14	250.69993	1.46	4.40	7.430	11.611	11.61909	45.000	3.12	11.366	45.0
15	272.27104	0.49	0.89	8.430	12.611	12.61909	46.000	4.12	12.366	46.0
16	293.84215	1.49	1.89	9.430	13.611	13.61909	47.000	5.12	13.366	47.0
17	315.41326	0.51	2.89	10.430	14.611	14.61909	48.000	6.12	14.366	48.0
18	336.98437	1.51	3.89	11.430	15.611	15.61909	49.000	7.12	15.366	49.0
19	358.55548	0.53	0.38	12.430	16.611	16.61909	50.000	8.12	16.366	50.0
20	20.12659	1.53	1.38	0.907	0.917	0.92863	0.842	0.74	0.549	51.0
21	41.69770	0.55	2.38	1.907	1.917	1.92863	1.842	1.74	1.549	52.0
22	63.26881	1.55	3.38	2.907	2.917	2.92863	2.842	2.74	2.549	53.0

In Leap Year diminish the date in Columns 1, 12, by 1 day after Feb. 28.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

X Motions of Mean Longitude and the Arguments for Days

	3	4	5	6	7	8	9			
Day	I	J	K	L	M	N	O	P	Q	R
	y									d
Jan 1	o o	1 00 0	1 000	1 0	1 00 0	1 0 0	1 0	1 0	1 00	1 0
2	o o	00000	0 0	0	0	2 0 0	0	00	2 0	2 0
3	o	3 000	3 000	3 0	3 0	3 000	3 0	3	3 0	3 0
4	o o	4 0	4	4 00	4 000	4 00	4 00	4 00	4 00	4 0
5	o	5 0000	5 0	5 0	5 0000	5 000	5 0	5 0	5 00	5 0
6	o o	6 00 0	6 0 0	6 00	6 0 0	6 0 0	6 00	6 0	6 00	6 00
7	o o	7 00 00	7 0 0	/ 00	7 00 0	7 00	7 0	7 0	7 0	7 0
8	o	8 00000	8 000	8 0	8 0 0	8 0	8 0	8	8 0	8 0
9	o o	9 00 0	0 656	0 66	9 0000	9 00	9 0	9 0	9 0	9 0
10	o o	10 0 00	1 656	1 66	10 0000	10 0	10 00	1 00	1 00	10 00
11	o	11 0 0	656	2 66	11 0 00	11 00	11 00	11 0	11 0	11 0
12	o o	1 00	3 656	3 66	1 0000	1 000	12 00	12 00	12 00	12 00
13	o o	13 00000	4 656	4 66	13 0 0	13 000	13 00	13 00	13 00	13 00
14		14 000 0	5 656	5 66	14 0000	14 000	14 0	14 0	14 00	14 0
15	o o	15 000 0	6 656	6 66	15 0000	15 000	15 00	15	15 0	15 00
16	o	16 0 000	7 656	7 66	16 0000	16 00	16 00	16 00	16 00	16 00
17	o	0 31098	0 312	0 31	0 31 4	0 316	18	0 1	0 38	0 25
18	o	1 31098	1 312	1 31	1 31 4	1 316	1 18	1 12	1 38	1 25
19	o 1	2 31098	31	2 31	2 31 4	2 316	2 18	2 12	38	2 25
20	o 1	3 31098	3 31	3 31	3 3124	3 316	3 18	3 12	3 38	3 25
21	o 1	4 31098	4 312	4 31	4 31 4	4 316	4 18	4 1	4 38	4 25
22	o 1	5 31 98	5 312	5 31	5 31 4	5 316	5 18	5 12	5 38	5 25
23	o 1	6 31098	6 312	6 31	6 31 4	6 316	6 18	6 1	6 38	6 25
24	o 1	7 31098	7 31	7 31	7 31 4	7 316	7 18	7 1	7 38	7 5
25	o 1	8 31098	8 312	8 31	8 3124	8 316	8 18	8 12	8 38	8 5
26	o 1	9 31098	0 968	0 97	9 3124	9 316	9 18	9 12	9 38	9 5
27	o 1	10 31 98	1 968	1 97	10 3124	10 316	10 18	10 1	10 38	1 25
28	o 1	11 31098	968	2 97	11 31 4	11 316	11 18	11 1	11 38	11 25
29	o 1	1 31098	3 968	3 97	1 3124	12 316	12 18	12 1	1 38	12 25
30	o 1	13 31098	4 968	4 97	13 3124	13 316	13 18	13 12	13 38	13 25
31	o 1	14 31098	5 968	5 97	14 3124	14 316	14 18	14 12	14 38	14 5
Feb 1	o 1	15 31 98	6 968	6 97	15 31 4	15 316	15 18	15 12	15 38	15 25
2	o 1	16 31098	7 968	7 97	16 31 4	16 316	16 18	16 12	16 38	16 25
3	o 1	0 62197	0 6 3	0 63	0 6 47	0 633	0 36	0 3	0 75	0 49
4	o 1	1 6 197	1 6 3	1 63	1 6247	1 633	1 36	1 3	1 75	1 49
5	o 1	6 197	2 623	2 63	6 47	633	2 36	2 3	75	2 49
6	o 1	3 6 197	3 623	3 63	3 6 47	3 633	3 36	3 23	3 75	3 49
7	o 1	4 62197	4 6 3	4 63	4 6 47	4 633	4 36	4 23	4 75	4 49
8	o 1	5 6 197	5 623	5 63	5 6 47	5 633	5 36	5 23	5 75	5 49
9	o 1	6 62197	6 623	6 63	6 6 47	6 633	6 36	6 3	6 75	6 49
10	o 1	7 6 197	7 623	7 63	7 6 47	7 633	7 36	7 23	7 75	7 49
11	1	8 6 197	79	28	8 6247	8 633	8 36	8 23	8 75	8 49
12	1	9 6 197	1 279	1 8	9 6 47	9 633	9 36	9 23	9 75	9 49
13	o 1	10 6 197	2 79	28	10 6 47	10 633	10 36	10 23	10 75	10 49
14	o 1	11 6 197	3 79	3 8	11 6247	11 633	11 36	11 23	11 75	11 49
15	o 1	1 6 197	4 79	4 8	1 6247	12 633	12 36	12 3	12 75	1 49
16	o 1	13 6 197	5 279	5 8	13 6 47	13 633	13 36	13 23	13 75	13 49
17	o 1	14 6 197	6 79	6 28	14 6247	14 633	14 36	14 23	14 75	14 49
18	o 1	15 6 197	7 79	7 28	15 6247	15 633	15 36	15 23	15 75	15 49
19	o 1	16 6 197	8 79	8 28	16 6 47	16 633	16 36	16 3	0 13	16 49
20	1	93 95	0 935	0 94	0 9371	0 949	54	0 35	1 13	0 74
21	o 1	1 93295	1 935	1 94	1 9371	1 949	1 54	1 35	2 13	1 74
22	o 1	93295	2 935	2 94	2 9371	949	2 54	35	3 13	74

I L pY dimi i h th d t i C l m by d y ft F b 8

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11
Day	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	α
	°	d	d	d	d	d	d	d	d	d
Feb. 23	84·83992	0·57	4·38	3·907	3·917	3·92863	3·842	3·74	3·549	54·0
24	106·41103	1·57	0·87	4·907	4·917	4·92863	4·842	4·74	4·549	55·0
25	127·98214	0·59	1·87	5·907	5·917	5·92863	5·842	5·74	5·549	56·0
26	149·55325	1·59	2·87	6·907	6·917	6·92863	6·842	6·74	6·549	57·0
27	171·12436	0·61	3·87	7·907	7·917	7·92863	7·842	7·74	7·549	58·0
28	192·69547	1·61	0·36	8·907	8·917	8·92863	8·842	0·36	8·549	59·0
Mar. 1	214·26658	0·63	1·36	9·907	9·917	9·92863	9·842	1·36	9·549	60·0
2	235·83769	1·63	2·36	10·907	10·917	10·92863	10·842	2·36	10·549	61·0
3	257·40880	0·65	3·36	11·907	11·917	11·92863	11·842	3·36	11·549	62·0
4	278·97991	1·65	4·36	0·384	12·917	12·92863	12·842	4·36	12·549	63·0
5	300·55102	0·67	0·85	1·384	13·917	13·92863	13·842	5·36	13·549	64·0
6	322·12213	1·67	1·85	2·384	14·917	14·92863	14·842	6·36	14·549	65·0
7	343·69324	0·70	2·85	3·384	15·917	15·92863	15·842	7·36	15·549	66·0
8	5·26435	1·70	3·85	4·384	0·223	0·23817	16·842	8·36	16·549	67·0
9	26·83545	0·72	0·33	5·384	1·223	1·23817	17·842	0·99	0·731	68·0
10	48·40656	1·72	1·33	6·384	2·223	2·23817	18·842	1·99	1·731	69·0
11	69·97767	0·74	2·33	7·384	3·223	3·23817	19·842	2·99	2·731	70·0
12	91·54878	1·74	3·33	8·384	4·223	4·23817	20·842	3·99	3·731	71·0
13	113·11989	0·76	4·33	9·384	5·223	5·23817	21·842	4·99	4·731	72·0
14	134·69100	1·76	0·82	10·384	6·223	6·23817	22·842	5·99	5·731	73·0
15	156·26211	0·78	1·82	11·384	7·223	7·23817	23·842	6·99	6·731	74·0
16	177·83322	1·78	2·82	12·384	8·223	8·23817	24·842	7·99	7·731	75·0
17	199·40433	0·80	3·82	0·861	9·223	9·23817	25·842	0·61	8·731	76·0
18	220·97544	1·80	0·31	1·861	10·223	10·23817	26·842	1·61	9·731	77·0
19	242·54655	0·82	1·31	2·861	11·223	11·23817	27·842	2·61	10·731	78·0
20	264·11766	1·82	2·31	3·861	12·223	12·23817	28·842	3·61	11·731	79·0
21	285·68877	0·84	3·31	4·861	13·223	13·23817	29·842	4·61	12·731	80·0
22	307·25988	1·84	4·31	5·861	14·223	14·23817	30·842	5·61	13·731	81·0
23	328·83099	0·86	0·80	6·861	15·223	15·23817	31·842	6·61	14·731	82·0
24	350·40210	1·86	1·80	7·861	16·223	16·23817	32·842	7·61	15·731	83·0
25	11·97321	0·89	2·80	8·861	0·528	0·54772	33·842	0·23	16·731	84·0
26	33·54432	1·89	3·80	9·861	1·528	1·54772	34·842	1·23	0·914	85·0
27	55·11543	0·91	0·29	10·861	2·528	2·54772	35·842	2·23	1·914	86·0
28	76·68654	1·91	1·29	11·861	3·528	3·54772	36·842	3·23	2·914	87·0
29	98·25765	0·93	2·29	0·337	4·528	4·54772	37·842	4·23	3·914	88·0
30	119·82876	1·93	3·29	1·337	5·528	5·54772	38·842	5·23	4·914	89·0
31	141·39987	0·95	4·29	2·337	6·528	6·54772	39·842	6·23	5·914	90·0
April 1	162·97098	1·95	0·78	3·337	7·528	7·54772	40·842	7·23	6·914	91·0
2	184·54209	0·97	1·78	4·337	8·528	8·54772	41·842	8·23	7·914	92·0
3	206·11320	1·97	2·78	5·337	9·528	9·54772	42·842	0·86	8·914	93·0
4	227·68431	0·99	3·78	6·337	10·528	10·54772	43·842	1·86	9·914	94·0
5	249·25541	0·01	0·27	7·337	11·528	11·54772	44·842	2·86	10·914	95·0
6	270·82652	1·01	1·27	8·337	12·528	12·54772	45·842	3·86	11·914	96·0
7	292·39763	0·03	2·27	9·337	13·528	13·54772	46·842	4·86	12·914	97·0
8	313·96874	1·03	3·27	10·337	14·528	14·54772	47·842	5·86	13·914	98·0
9	335·53985	0·05	4·27	11·337	15·528	15·54772	48·842	6·86	14·914	99·0
10	357·11096	1·05	0·76	12·337	16·528	16·54772	49·842	7·86	15·914	100·0
11	18·68207	0·08	1·76	0·814	0·834	0·85726	0·684	0·48	0·097	101·0
12	40·25318	1·08	2·76	1·814	1·834	1·85726	1·684	1·48	1·097	102·0
13	61·82429	0·10	3·76	2·814	2·834	2·85726	2·684	2·48	2·097	103·0
14	83·39540	1·10	0·25	3·814	3·834	3·85726	3·684	3·48	3·097	104·0
15	104·96651	0·12	1·25	4·814	4·834	4·85726	4·684	4·48	4·097	105·0
16	126·53762	1·12	2·25	5·814	5·834	5·85726	5·684	5·48	5·097	106·0

In Leap Year diminish the date in Columns 1, 12, by 1 day after Feb. 28.

SATELLITE IV

Tables of Longıtude, Latıtude, and Radıus Vector

X *contınued* **Motıons of Mean Longıtude and the Arguments for Days**

	3	4	5	6	7	8	9			
D y	I	J	K	L	M	N	O	P	Q	R
								d	d	d
Feb 23	o 1	3 93 95	3 935	3 94	3 9371	3 949	3 54	3 35	4 13	3 74
24	o 2	4 93 95	4 935	4 94	4 9371	4 949	4 54	4 35	5 13	4 74
25	o 2	5 93 95	5 935	5 94	5 9371	5 949	5 54	5 35	6 13	5 74
26	o	6 93 95	6 935	6 94	6 9371	6 949	6 54	6 35	7 13	6 74
27		7 93 95	7 935	7 94	7 9371	7 949	7 54	7 35	8 13	7 74
28	o 2	8 93 95	591	o 60	8 9371	8 949	8 54	8 35	9 13	8 74
Mar 1	o	9 93 95	1 591	1 6	9 9371	9 949	9 54	9 35	10 13	9 74
2	2	10 93 95	591	6	10 9371	10 949	1 54	1 35	11 13	10 74
3	o	11 93 95	3 591	3 60	11 9371	11 949	11 54	11 35	12 13	11 74
4	o 2	12 93295	4 591	4 6	1 9371	1 949	1 54	1 35	13 13	12 74
5	o 2	13 93 95	5 591	5 60	13 9371	13 949	13 54	13 35	14 13	13 74
6	o	14 93 95	6 591	6 60	14 9371	14 949	14 54	14 35	15 13	14 74
7	o	15 93 95	7 591	7 60	15 9371	15 949	15 54	15 35	16 13	15 74
8	o 2	o 24394	o 47	o 5	o 495	o 66	16 54	16 35	o 50	16 74
9	o	1 24394	1 47	1 25	1 495	1 266	o 73	o 46	1 50	o 99
10		2 4394	47	25	495	266	1 73	1 46	2 50	1 99
11	o 2	3 4394	3 47	3 25	3 2495	3 266	73	2 46	3 50	99
12	o 2	4 24394	4 47	4 25	4 2495	4 66	3 73	3 46	4 50	3 99
13	o 2	5 4394	5 47	5 25	5 495	5 66	4 73	4 46	5 50	4 99
14	o	6 4394	6 47	6 25	6 2495	6 266	5 73	5 46	6 50	5 99
15	o 2	7 24394	7 247	7 5	7 2495	7 66	6 73	6 46	7 50	6 99
16	o	8 4394	8 47	8 25	8 2495	8 266	7 73	7 46	8 50	7 99
17	o 2	9 24394	o 9 3	91	9 2495	9 266	8 73	8 46	9 5	8 99
18	o 2	10 24394	1 903	1 91	10 2495	10 66	9 73	9 46	10 50	9 99
19	o 2	11 4394	903	2 91	11 2495	11 266	10 73	10 46	11 50	10 99
20	o 2	12 24394	3 903	3 91	1 495	12 66	11 73	11 46	1 50	11 99
21	o	13 4394	4 903	4 91	13 2495	13 66	1 73	12 46	13 50	1 99
22	o	14 24394	5 903	5 91	14 2495	14 66	13 73	13 46	14 50	13 99
23	2	15 4394	6 903	6 91	15 2495	15 66	14 73	14 46	15 50	14 99
24	o	16 4394	7 903	7 91	16 495	16 66	15 73	15 46	16 50	15 99
25	o 2	o 55492	558	o 57	o 5618	o 582	16 73	16 46	o 88	o 3
26	o	1 5549	1 558	1 57	1 5618	1 582	o 91	o 58	1 88	1 23
27	o 2	2 55492	558	57	2 5618	2 58	1 91	1 58	88	2 3
28	o 2	3 5549	3 558	3 57	3 5618	3 582	2 91	58	3 88	3 23
29	o 2	4 55492	4 558	4 57	4 5618	4 582	3 91	3 58	4 88	4 23
30		5 5549	5 558	5 57	5 5618	5 58	4 91	4 58	5 88	5 23
31	o	6 55492	6 558	6 57	6 5618	6 58	5 91	5 58	6 88	6 3
April 1	o 2	7 55492	7 558	7 57	7 5618	7 58	6 91	6 58	7 88	7 3
2	o 3	8 5549	o 14	o 3	8 5618	8 58	7 91	7 58	8 88	8 23
3	o 3	9 5549	1 214	1 23	9 5618	9 58	8 91	8 58	9 88	9 23
4	o 3	10 5549	14	2 3	10 5618	10 582	9 91	9 58	1 88	10 3
5	o 3	11 55492	3 214	3 23	11 5618	11 582	1 91	10 58	11 88	11 23
6	o 3	1 5549	4 14	4 23	12 5618	1 582	11 91	11 58	1 88	12 23
7	3	13 5549	5 14	5 23	13 5618	13 58	1 91	12 58	13 88	13 23
8	o 3	14 5549	6 214	6 3	14 5618	14 58	13 91	13 58	14 88	14 23
9	3	15 55492	7 14	7 3	15 5618	15 582	14 91	14 58	15 88	15 3
10	o 3	16 5549	8 14	8 3	16 5618	16 582	15 91	15 58	o 5	16 3
11	o 3	86590	o 870	o 88	o 874	o 898	o 09	16 58	1 25	o 48
12	o 3	1 86590	1 87	1 88	1 8742	1 898	1 09	o 70	2 5	1 48
13	o 3	8659	2 870	88	2 8742	2 898	09	1 70	3 25	2 48
14	o 3	3 86590	3 870	3 88	3 874	3 898	3 09	2 70	4 5	3 48
15	o 3	4 8659	4 870	4 88	4 874	4 898	4 09	3 70	5 25	4 48
16	o 3	5 8659	5 870	5 88	5 8742	5 898	5 09	4 70	6 25	5 48

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11
Day	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	a
	°	d	d	d	d	d	d	d	d	d
April 17	148·10873	0·14	3·25	6·814	6·834	6·85726	6·684	6·48	6·097	107·0
18	169·67984	1·14	4·25	7·814	7·834	7·85726	7·684	7·48	7·097	108·0
19	191·25095	0·16	0·73	8·814	8·834	8·85726	8·684	0·10	8·097	109·0
20	212·82206	1·16	1·73	9·814	9·834	9·85726	9·684	1·10	9·097	110·0
21	234·39317	0·18	2·73	10·814	10·834	10·85726	10·684	2·10	10·097	111·0
22	255·96428	1·18	3·73	11·814	11·834	11·85726	11·684	3·10	11·097	112·0
23	277·53539	0·20	0·22	0·291	12·834	12·85726	12·684	4·10	12·097	113·0
24	299·10650	1·20	1·22	1·291	13·834	13·85726	13·684	5·10	13·097	114·0
25	320·67761	0·22	2·22	2·291	14·834	14·85726	14·684	6·10	14·097	115·0
26	342·24872	1·22	3·22	3·291	15·834	15·85726	15·684	7·10	15·097	116·0
27	3·81983	0·24	4·22	4·291	0·139	0·16680	16·684	8·10	16·097	117·0
28	25·39094	1·24	0·71	5·291	1·139	1·16680	17·684	0·73	0·280	118·0
29	46·96205	0·27	1·71	6·291	2·139	2·16680	18·684	1·73	1·280	119·0
30	68·53316	1·27	2·71	7·291	3·139	3·16680	19·684	2·73	2·280	120·0
May 1	90·10426	0·29	3·71	8·291	4·139	4·16680	20·684	3·73	3·280	121·0
2	111·67537	1·29	0·20	9·291	5·139	5·16680	21·684	4·73	4·280	122·0
3	133·24648	0·31	1·20	10·291	6·139	6·16680	22·684	5·73	5·280	123·0
4	154·81759	1·31	2·20	11·291	7·139	7·16680	23·684	6·73	6·280	124·0
5	176·38870	0·33	3·20	12·291	8·139	8·16680	24·684	7·73	7·280	125·0
6	197·95981	1·33	4·20	0·768	9·139	9·16680	25·684	0·35	8·280	126·0
7	219·53092	0·35	0·69	1·768	10·139	10·16680	26·684	1·35	9·280	127·0
8	241·10203	1·35	1·69	2·768	11·139	11·16680	27·684	2·35	10·280	128·0
9	262·67314	0·37	2·69	3·768	12·139	12·16680	28·684	3·35	11·280	129·0
10	284·24425	1·37	3·69	4·768	13·139	13·16680	29·684	4·35	12·280	130·0
11	305·81536	0·39	0·18	5·768	14·139	14·16680	30·684	5·35	13·280	131·0
12	327·38647	1·39	1·18	6·768	15·139	15·16680	31·684	6·35	14·280	132·0
13	348·95758	0·41	2·18	7·768	16·139	16·16680	32·684	7·35	15·280	133·0
14	10·52869	1·41	3·18	8·768	0·445	0·47635	33·684	8·35	16·280	134·0
15	32·09980	0·43	4·18	9·768	1·445	1·47635	34·684	0·97	0·463	135·0
16	53·67091	1·43	0·67	10·768	2·445	2·47635	35·684	1·97	1·463	136·0
17	75·24202	0·46	1·67	11·768	3·445	3·47635	36·684	2·97	2·463	137·0
18	96·81313	1·46	2·67	0·244	4·445	4·47635	37·684	3·97	3·463	138·0
19	118·38424	0·48	3·67	1·244	5·445	5·47635	38·684	4·97	4·463	139·0
20	139·95535	1·48	0·16	2·244	6·445	6·47635	39·684	5·97	5·463	140·0
21	161·52646	0·50	1·16	3·244	7·445	7·47635	40·684	6·97	6·463	141·0
22	183·09757	1·50	2·16	4·244	8·445	8·47635	41·684	7·97	7·463	142·0
23	204·66868	0·52	3·16	5·244	9·445	9·47635	42·684	0·59	8·463	143·0
24	226·23979	1·52	4·16	6·244	10·445	10·47635	43·684	1·59	9·463	144·0
25	247·81090	0·54	0·65	7·244	11·445	11·47635	44·684	2·59	10·463	145·0
26	269·38201	1·54	1·65	8·244	12·445	12·47635	45·684	3·59	11·463	146·0
27	290·95312	0·56	2·65	9·244	13·445	13·47635	46·684	4·59	12·463	147·0
28	312·52423	1·56	3·65	10·244	14·445	14·47635	47·684	5·59	13·463	148·0
29	334·09533	0·58	0·13	11·244	15·445	15·47635	48·684	6·59	14·463	149·0
30	355·66644	1·58	1·13	12·244	16·445	16·47635	49·684	7·59	15·463	150·0
31	17·23755	0·60	2·13	0·721	0·751	0·78589	0·526	0·22	16·463	151·0
June 1	38·80866	1·60	3·13	1·721	1·751	1·78589	1·526	1·22	0·646	152·0
2	60·37977	0·62	4·13	2·721	2·751	2·78589	2·526	2·22	1·646	153·0
3	81·95088	1·62	0·62	3·721	3·751	3·78589	3·526	3·22	2·646	154·0
4	103·52199	0·65	1·62	4·721	4·751	4·78589	4·526	4·22	3·646	155·0
5	125·09310	1·65	2·62	5·721	5·751	5·78589	5·526	5·22	4·646	156·0
6	146·66421	0·67	3·62	6·721	6·751	6·78589	6·526	6·22	5·646	157·0
7	168·23532	1·67	0·11	7·721	7·751	7·78589	7·526	7·22	6·646	158·0

In Leap Year diminish the date in Columns 1, 12, by 1 day after Feb. 28.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

	3	4	5	6	7	8	9			
Day	I	J	K	L	M	N	O	P	Q	R
								d	d	d
April 17	0 3	6 8659	6 870	6 88	6 874	6 898	6 09	5 70	7 5	6 48
18	0 3	7 8659	7 870	7 88	7 874	7 898	7 09	6 7	8 5	7 48
19	0 3	8 86590	5 6	0 54	8 874	8 898	8 09	7 7	9 5	8 48
20	3	9 86590	1 5 6	1 54	9 874	9 898	9 09	8 70	10 25	9 48
21	0 3	10 86590	5 6	2 54	10 8742	1 898	10 09	9 7	11 5	10 48
22	0 3	11 86590	3 526	3 54	11 8742	11 898	11 09	10 70	1 25	11 48
23	3	1 86590	4 5 6	4 54	12 8742	1 898	1 09	11 7	13 5	12 48
24	0 3	13 86590	5 5 6	5 54	13 874	13 898	13 09	1 70	14 5	13 48
25	0 3	14 8659	6 5 6	6 54	14 874	14 898	14 9	13 70	15 25	14 48
26	0 3	15 8659	7 5 6	7 54	15 8742	15 898	15 09	14 70	16 5	15 48
27	0 3	0 17689	0 18	0 20	0 1866	0 15	16 09	15 70	0 63	16 48
28	0 3	1 17689	1 18	1 0	1 1866	1 15	0 7	16 70	1 63	0 73
29	0 3	17689	2 182	20	1866	15	1 7	0 81	63	1 73
30	3	3 17689	3 18	3 0	3 1866	3 15	27	1 81	3 63	2 73
May 1	3	4 17689	4 182	4 20	4 1866	4 215	3 27	81	4 63	3 73
2	0 3	5 17689	5 18	5 20	5 1866	5 15	4 27	3 81	5 63	4 73
3	0 3	6 17689	6 18	6	6 1866	6 15	5 7	4 81	6 63	5 73
4	0 3	7 17689	7 18	7	7 1866	7 215	6 7	5 81	7 63	6 73
5	0 3	8 17689	8 182	8 20	8 1866	8 215	7 27	6 81	8 63	7 73
6	0 3	9 17689	0 838	0 85	9 1866	9 15	8 7	7 81	9 63	8 73
7	0 3	10 17689	1 838	1 85	10 1866	10 215	9 7	8 81	10 63	9 73
8	0 4	11 17689	2 838	2 85	11 1866	11 215	10 27	9 81	11 63	10 73
9	0 4	1 17689	3 838	3 85	12 1866	12 215	11 27	10 81	12 63	11 73
10	0 4	13 17689	4 838	4 85	13 1866	13 215	1 7	11 81	13 63	12 73
11	0 4	14 17689	5 838	5 85	14 1866	14 15	13 7	12 81	14 63	13 73
12	0 4	15 17689	6 838	6 85	15 1866	15 15	14 27	13 81	15 63	14 73
13	0 4	16 17689	7 838	7 85	16 1866	16 15	15 27	14 81	0 00	15 73
14	0 4	0 48787	0 493	0 51	0 4990	0 531	16 27	15 81	1 00	16 73
15	0 4	1 48787	1 493	1 51	1 4990	1 531	0 45	16 81	00	97
16	0 4	48787	2 493	2 51	2 4990	531	1 45	0 93	3 00	1 97
17	0 4	3 48787	3 493	3 51	3 4990	3 531	45	1 93	4 00	2 97
18	0 4	4 48787	4 493	4 51	4 499	4 531	3 45	2 93	5 00	3 97
19	0 4	5 48787	5 493	5 51	5 4990	5 531	4 45	3 93	6 00	4 97
20	0 4	6 48787	6 493	6 51	6 499	6 531	5 45	4 93	7 00	5 97
21	0 4	7 48787	7 493	7 51	7 4990	7 531	6 45	5 93	8 00	6 97
22	0 4	8 48787	0 149	0 17	8 4990	8 531	7 45	6 93	9 00	7 97
23	0 4	9 48787	1 149	1 17	9 4990	9 531	8 45	7 93	10 00	8 97
24	0 4	1 48787	2 149	17	10 4990	1 531	9 45	8 93	11 00	9 97
25	4	11 48787	3 149	3 17	11 4990	11 531	10 45	9 93	1 00	10 97
26	0 4	1 48787	4 149	4 17	12 4990	1 531	11 45	10 93	13 0	11 97
27	0 4	13 48787	5 149	5 17	13 4990	13 531	1 45	11 93	14 00	1 97
28	0 4	14 48787	6 149	6 17	14 4990	14 531	13 45	1 93	15 00	13 97
29	0 4	15 48787	7 149	7 17	15 4990	15 531	14 45	13 93	16 00	14 97
30	0 4	16 48787	8 149	8 17	16 4990	16 531	15 45	14 93	0 38	15 97
31	0 4	79885	8 5	0 8	0 8113	0 848	16 45	15 93	1 38	
June 1	0 4	1 79885	1 8 5	1 8	1 8113	1 848	0 63	0 04	2 38	1 22
2	4	2 79885	8 5	82	8113	2 848	1 63	1 4	3 38	
3	4	3 79885	3 805	3 8	3 8113	3 848	2 63	2 04	4 38	3
4	0 4	4 79885	4 805	4 82	4 8113	4 848	3 63	3 04	5 38	4 2
5	0 4	5 79885	5 805	5 8	5 8113	5 848	4 63	4 04	6 38	5 2
6	4	6 79885	6 8 5	6 8	6 8113	6 848	5 63	5 04	7 38	6
7	0 4	7 79885	7 8 5	7 8	7 8113	7 848	6 63	6 04	8 38	7 2

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11
Day	Mean Long.	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	*a*
	°	d	d	d	d	d	d	d	d	d
June 8	189·80643	0·69	1·11	8·721	8·751	8·78589	8·526	8·22	7·646	159·0
9	211·37754	1·69	2·11	9·721	9·751	9·78589	9·526	0·84	8·646	160·0
10	232·94865	0·71	3·11	10·721	10·751	10·78589	10·526	1·84	9·646	161·0
11	254·51976	1·71	4·11	11·721	11·751	11·78589	11·526	2·84	10·646	162·0
12	276·09087	0·73	0·60	0·198	12·751	12·78589	12·526	3·84	11·646	163·0
13	297·66198	1·73	1·60	1·198	13·751	13·78589	13·526	4·84	12·646	164·0
14	319·23309	0·75	2·60	2·198	14·751	14·78589	14·526	5·84	13·646	165·0
15	340·80420	1·75	3·60	3·198	15·751	15·78589	15·526	6·84	14·646	166·0
16	2·37531	0·77	0·09	4·198	0·056	0·09543	16·526	7·84	15·646	167·0
17	23·94642	1·77	1·09	5·198	1·056	1·09543	17·526	0·46	16·646	168·0
18	45·51753	0·79	2·09	6·198	2·056	2·09543	18·526	1·46	0·829	169·0
19	67·08864	1·79	3·09	7·198	3·056	3·09543	19·526	2·46	1·829	170·0
20	88·65975	0·81	4·09	8·198	4·056	4·09543	20·526	3·46	2·829	171·0
21	110·23086	1·81	0·58	9·198	5·056	5·09543	21·526	4·46	3·829	172·0
22	131·80197	0·83	1·58	10·198	6·056	6·09543	22·526	5·46	4·829	173·0
23	153·37308	1·83	2·58	11·198	7·056	7·09543	23·526	6·46	5·829	174·0
24	174·94419	0·86	3·58	12·198	8·056	8·09543	24·526	7·46	6·829	175·0
25	196·51529	1·86	0·07	0·675	9·056	9·09543	25·526	0·09	7·829	176·0
26	218·08640	0·88	1·07	1·675	10·056	10·09543	26·526	1·09	8·829	177·0
27	239·65751	1·88	2·07	2·675	11·056	11·09543	27·526	2·09	9·829	178·0
28	261·22862	0·90	3·07	3·675	12·056	12·09543	28·526	3·09	10·829	179·0
29	282·79973	1·90	4·07	4·675	13·056	13·09543	29·526	4·09	11·829	180·0
30	304·37084	0·92	0·56	5·675	14·056	14·09543	30·526	5·09	12·829	181·0
July 1	325·94195	1·92	1·56	6·675	15·056	15·09543	31·526	6·09	13·829	182·0
2	347·51306	0·94	2·56	7·675	16·056	16·09543	32·526	7·09	14·829	183·0
3	9·08417	1·94	3·56	8·675	0·362	0·40498	33·526	8·09	15·829	184·0
4	30·65528	0·96	0·05	9·675	1·362	1·40498	34·526	0·71	0·012	185·0
5	52·22639	1·96	1·05	10·675	2·362	2·40498	35·526	1·71	1·012	186·0
6	73·79750	0·98	2·05	11·675	3·362	3·40498	36·526	2·71	2·012	187·0
7	95·36861	0·00	3·05	0·151	4·362	4·40498	37·526	3·71	3·012	188·0
8	116·93972	1·00	4·05	1·151	5·362	5·40498	38·526	4·71	4·012	189·0
9	138·51083	0·02	0·54	2·151	6·362	6·40498	39·526	5·71	5·012	190·0
10	160·08194	1·02	1·54	3·151	7·362	7·40498	40·526	6·71	6·012	191·0
11	181·65305	0·05	2·54	4·151	8·362	8·40498	41·526	7·71	7·012	192·0
12	203·22416	1·05	3·54	5·151	9·362	9·40498	42·526	0·33	8·012	193·0
13	224·79527	0·07	0·02	6·151	10·362	10·40498	43·526	1·33	9·012	194·0
14	246·36638	1·07	1·02	7·151	11·362	11·40498	44·526	2·33	10·012	195·0
15	267·93749	0·09	2·02	8·151	12·362	12·40498	45·526	3·33	11·012	196·0
16	289·50860	1·09	3·02	9·151	13·362	13·40498	46·526	4·33	12·012	197·0
17	311·07971	0·11	4·02	10·151	14·362	14·40498	47·526	5·33	13·012	198·0
18	332·65082	1·11	0·51	11·151	15·362	15·40498	48·526	6·33	14·012	199·0
19	354·22193	0·13	1·51	12·151	16·362	16·40498	49·526	7·33	15·012	200·0
20	15·79304	1·13	2·51	0·628	0·668	0·71452	0·368	8·33	16·012	201·0
21	37·36415	0·15	3·51	1·628	1·668	1·71452	1·368	0·96	0·194	202·0
22	58·93525	1·15	0·00	2·628	2·668	2·71452	2·368	1·96	1·194	203·0
23	80·50636	0·17	1·00	3·628	3·668	3·71452	3·368	2·96	2·194	204·0
24	102·07747	1·17	2·00	4·628	4·668	4·71452	4·368	3·96	3·194	205·0
25	123·64858	0·19	3·00	5·628	5·668	5·71452	5·368	4·96	4·194	206·0
26	145·21969	1·19	4·00	6·628	6·668	6·71452	6·368	5·96	5·194	207·0
27	166·79080	0·21	0·49	7·628	7·668	7·71452	7·368	6·96	6·194	208·0
28	188·36191	1·21	1·49	8·628	8·668	8·71452	8·368	7·96	7·194	209·0
29	209·93302	0·24	2·49	9·628	9·668	9·71452	9·368	0·58	8·194	210·0

In Leap Year diminish the date in Columns 1, 12, by 1 day after Feb. 28.

X *continued* **Motions of Mean Longitude and the Arguments for Days**

	3	4	5	6	7	8	9			
D y	I	J	K	L	M	N	O	P	Q	R
	y			d			d			
June 8	0 4	8 79885	0 461	0 48	8 8113	8 848	7 63	7 04	9 38	8 22
9	4	9 79885	1 461	1 48	9 8113	9 848	8 63	8 04	10 38	9 22
10	0 4	10 79885	2 461	48	10 8113	1 848	9 63	9 04	11 38	1 22
11	4	11 79885	3 461	3 48	11 8113	11 848	10 63	10 04	12 38	11 2
12	4	1 79885	4 461	4 48	12 8113	1 848	11 63	11 04	13 38	12 22
13	0 4	13 79885	5 461	5 48	13 8113	13 848	1 63	1 04	14 38	13 2
14	5	14 79885	6 461	6 48	14 8113	14 848	13 63	13 04	15 38	14 22
15	0 5	15 79885	7 461	7 48	15 8113	15 848	14 63	14 04	16 38	15 22
16	0 5	10984	0 117	14	0 1237	0 164	15 63	15 04	0 75	16
17	0 5	1 1 984	1 117	1 14	1 1237	1 164	16 63	16 04	1 75	46
18	0 5	2 10984	2 117	14	2 1237	2 164	0 81	0 16	2 75	1 46
19	0 5	3 10984	3 117	3 14	3 1237	3 164	1 81	1 16	3 75	2 46
20	0 5	4 1 984	4 117	4 14	4 1 37	4 164	81	2 16	4 75	3 46
21	0 5	5 10984	5 117	5 14	5 1237	5 164	3 81	3 16	5 75	4 46
22	0 5	6 1 984	6 117	6 14	6 1 37	6 164	4 81	4 16	6 75	5 46
23	0 5	7 10984	7 117	7 14	7 1 37	7 164	5 81	5 16	7 75	6 46
24	0 5	8 10984	8 117	8 14	8 1237	8 164	6 81	6 16	8 75	7 46
25	0 5	9 10984	0 773	0 79	9 1237	9 164	7 81	7 16	9 75	8 46
26	0 5	10 10984	1 773	1 79	10 1237	10 164	8 81	8 16	10 75	9 46
27	0 5	11 10984	2 773	79	11 1 37	11 164	9 81	9 16	11 75	10 46
28	0 5	12 10984	3 773	3 79	12 1237	12 164	10 81	10 16	12 75	11 46
29	0 5	13 10984	4 773	4 79	13 1 37	13 164	11 81	11 16	13 75	12 46
30	5	14 10984	5 773	5 79	14 1237	14 164	1 81	12 16	14 75	13 46
July 1	0 5	15 10984	6 773	6 79	15 1237	15 164	13 81	13 16	15 75	14 46
2	0 5	16 10984	7 773	7 79	16 1 37	16 164	14 81	14 16	0 13	15 46
3	0 5	0 4 8	0 4 8	0 45	0 4361	0 480	15 81	15 16	1 13	16 46
4	5	1 4 8	1 4 8	1 45	1 4361	1 480	0 0	16 16	2 13	0 71
5	0 5	2 4 82	428	45	2 4361	2 480	1 00	0 27	3 13	1 71
6	0 5	3 4 082	3 4 8	3 45	3 4361	3 480	2 00	1 7	4 13	71
7	0 5	4 42082	4 4 8	4 45	4 4361	4 480	3 00	2 27	5 13	3 71
8	0 5	5 4 82	5 428	5 45	5 4361	5 480	4 00	3 27	6 13	4 71
9	0 5	6 4 082	6 4 8	6 45	6 4361	6 480	5 00	4 27	7 13	5 71
10	0 5	7 4 082	7 4 8	7 45	7 4361	7 480	6 00	5 7	8 13	6 71
11	0 5	8 4 082	0 084	0 11	8 4361	8 480	7 00	6 7	9 13	7 71
12	0 5	9 4 082	1 084	1 11	9 4361	9 480	8 00	7 27	10 13	8 71
13	0 5	10 42082	084	11	10 4361	10 480	9 00	8 27	11 13	9 71
14	0 5	11 4 82	3 084	3 11	11 4361	11 480	10 0	9 27	12 13	10 71
15	0 5	1 4 82	4 84	4 11	12 4361	12 480	11 0	10 7	13 13	11 71
16	5	13 42 8	5 084	5 11	13 4361	13 480	12 00	11 27	14 13	1 71
17	0 5	14 4208	6 084	6 11	14 4361	14 480	13 00	12 7	15 13	13 71
18	5	15 42 82	7 084	7 11	15 4361	15 480	14 00	13 27	16 13	14 71
19	5	16 4 8	8 084	8 11	16 4361	16 480	15 0	14 7	0 50	15 71
20	0 6	73181	0 740	0 76	0 7484	0 797	16 00	15 27	1 50	16 71
21	0 6	1 73181	1 740	1 76	1 7484	1 797	0 18	16 27	2 50	0 96
22	0 6	2 73181	740	2 76	7484	797	1 18	0 39	3 50	1 96
23	0 6	3 73181	3 740	3 76	3 7484	3 797	18	1 39	4 50	96
24	0 6	4 73181	4 74	4 76	4 7484	4 797	3 18	39	5 50	3 96
25	0 6	5 73181	5 740	5 76	5 7484	5 797	4 18	3 39	6 5	4 96
26	6	6 73181	6 740	6 76	6 7484	6 797	5 18	4 39	7 50	5 96
27	0 6	7 73181	7 740	7 76	7 7484	7 797	6 18	5 39	8 50	6 96
28	0 6	8 73181	0 396	0 4	8 7484	8 797	7 18	6 39	9 50	7 96
29	0 6	9 73181	1 396	1 4	9 7484	9 797	8 18	7 39	1 5	8 96

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11
Day	Mean Long.	A	B	C	D	E	F	G	H	α
	°	d	d	d	d	d	d	d	d	d
July 30	231·50413	1·24	3·49	10·628	10·668	10·71452	10·368	1·58	9·194	211·0
31	253·07524	0·26	4·49	11·628	11·668	11·71452	11·368	2·58	10·194	212·0
Aug. 1	274·64635	1·26	0·98	0·105	12·668	12·71452	12·368	3·58	11·194	213·0
2	296·21746	0·28	1·98	1·105	13·668	13·71452	13·368	4·58	12·194	214·0
3	317·78857	1·28	2·98	2·105	14·668	14·71452	14·368	5·58	13·194	215·0
4	339·35968	0·30	3·98	3·105	15·668	15·71452	15·368	6·58	14·194	216·0
5	0·93079	1·30	0·47	4·105	16·668	0·02406	16·368	7·58	15·194	217·0
6	22·50190	0·32	1·47	5·105	0·973	1·02406	17·368	0·20	16·194	218·0
7	44·07301	1·32	2·47	6·105	1·973	2·02406	18·368	1·20	0·377	219·0
8	65·64412	0·34	3·47	7·105	2·973	3·02406	19·368	2·20	1·377	220·0
9	87·21523	1·34	4·47	8·105	3·973	4·02406	20·368	3·20	2·377	221·0
10	108·78634	0·36	0·96	9·105	4·973	5·02406	21·368	4·20	3·377	222·0
11	130·35745	1·36	1·96	10·105	5·973	6·02406	22·368	5·20	4·377	223·0
12	151·92856	0·38	2·96	11·105	6·973	7·02406	23·368	6·20	5·377	224·0
13	173·49967	1·38	3·96	12·105	7·973	8·02406	24·368	7·20	6·377	225·0
14	195·07078	0·40	0·45	0·582	8·973	9·02406	25·368	8·20	7·377	226·0
15	216·64189	1·40	1·45	1·582	9·973	10·02406	26·368	0·83	8·377	227·0
16	238·21300	0·43	2·45	2·582	10·973	11·02406	27·368	1·83	9·377	228·0
17	259·78411	1·43	3·45	3·582	11·973	12·02406	28·368	2·83	10·377	229·0
18	281·35521	0·45	4·45	4·582	12·973	13·02406	29·368	3·83	11·377	230·0
19	302·92632	1·45	0·94	5·582	13·973	14·02406	30·368	4·83	12·377	231·0
20	324·49743	0·47	1·94	6·582	14·973	15·02406	31·368	5·83	13·377	232·0
21	346·06854	1·47	2·94	7·582	15·973	16·02406	32·368	6·83	14·377	233·0
22	7·63965	0·49	3·94	8·582	0·279	0·33361	33·368	7·83	15·377	234·0
23	29·21076	1·49	0·42	9·582	1·279	1·33361	34·368	0·45	16·377	235·0
24	50·78187	0·51	1·42	10·582	2·279	2·33361	35·368	1·45	0·560	236·0
25	72·35298	1·51	2·42	11·582	3·279	3·33361	36·368	2·45	1·560	237·0
26	93·92409	0·53	3·42	0·058	4·279	4·33361	37·368	3·45	2·560	238·0
27	115·49520	1·53	4·42	1·058	5·279	5·33361	38·368	4·45	3·560	239·0
28	137·06631	0·55	0·91	2·058	6·279	6·33361	39·368	5·45	4·560	240·0
29	158·63742	1·55	1·91	3·058	7·279	7·33361	40·368	6·45	5·560	241·0
30	180·20853	0·57	2·91	4·058	8·279	8·33361	41·368	7·45	6·560	242·0
31	201·77964	1·57	3·91	5·058	9·279	9·33361	42·368	0·07	7·560	243·0
Sept. 1	223·35075	0·59	0·40	6·058	10·279	10·33361	43·368	1·07	8·560	244·0
2	244·92186	1·59	1·40	7·058	11·279	11·33361	44·368	2·07	9·560	245·0
3	266·49297	0·62	2·40	8·058	12·279	12·33361	45·368	3·07	10·560	246·0
4	288·06408	1·62	3·40	9·058	13·279	13·33361	46·368	4·07	11·560	247·0
5	309·63519	0·64	4·40	10·058	14·279	14·33361	47·368	5·07	12·560	248·0
6	331·20630	1·64	0·89	11·058	15·279	15·33361	48·368	6·07	13·560	249·0
7	352·77741	0·66	1·89	12·058	16·279	16·33361	49·368	7·07	14·560	250·0
8	14·34852	1·66	2·89	0·535	0·584	0·64315	0·211	8·07	15·560	251·0
9	35·91963	0·68	3·89	1·535	1·584	1·64315	1·211	0·70	16·560	252·0
10	57·49074	1·68	0·38	2·535	2·584	2·64315	2·211	1·70	0·743	253·0
11	79·06185	0·70	1·38	3·535	3·584	3·64315	3·211	2·70	1·743	254·0
12	100·63296	1·70	2·38	4·535	4·584	4·64315	4·211	3·70	2·743	255·0
13	122·20407	0·72	3·38	5·535	5·584	5·64315	5·211	4·70	3·743	256·0
14	143·77517	1·72	4·38	6·535	6·584	6·64315	6·211	5·70	4·743	257·0
15	165·34628	0·74	0·87	7·535	7·584	7·64315	7·211	6·70	5·743	258·0
16	186·91739	1·74	1·87	8·535	8·584	8·64315	8·211	7·70	6·743	259·0
17	208·48850	0·76	2·87	9·535	9·584	9·64315	9·211	0·32	7·743	260·0
18	230·05961	1·76	3·87	10·535	10·584	10·64315	10·211	1·32	8·743	261·0
19	251·63072	0·78	0·36	11·535	11·584	11·64315	11·211	2·32	9·743	262·0

In Leap Year diminish the date in Columns 1, 12, by 1 day after Feb. 28.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

	3	4	5	6	7	8	9			
Day	I	J	K	L	M	N	O	P	Q	R
			d	d			d			d
July 30	0 6	1 73181	2 396	42	1 7484	10 797	9 18	8 39	11 5	9 96
31	6	11 73181	3 396	3 4	11 7484	11 797	10 18	9 39	1 50	10 96
Aug 1	0 6	1 73181	4 396	4 42	1 7484	1 797	11 18	10 39	13 5	11 96
2	0 6	13 73181	5 396	5 4	13 7484	13 797	1 18	11 39	14 50	12 96
3	6	14 73181	6 396	6 4	14 7484	14 797	13 18	12 39	15 50	13 96
4	0 6	15 73181	7 396	7 4	15 7484	15 797	14 18	13 39	16 50	14 96
5	6	04279	05	0 08	6 8	0 113	15 18	14 39	0 88	15 96
6	0 6	1 4 79	1 05	1 08	1 06 8	1 113	16 18	15 39	1 88	0 20
7	0 6	4 79	052	08	0608	113	0 36	16 39	88	1 0
8	0 6	3 4279	3 052	3 08	3 0608	3 113	1 36	0 51	3 88	2 0
9	0 6	4 04279	4 052	4 08	4 0608	4 113	2 36	1 51	4 88	3 20
10	0 6	5 04279	5 052	5 8	5 0608	5 113	3 36	2 51	5 88	4 20
11	0 6	6 4 79	6 05	6 08	6 06 8	6 113	4 36	3 51	6 88	5 20
12	0 6	7 4 79	7 05	7 08	7 608	7 113	5 36	4 51	7 88	6 0
13	0 6	8 04 79	8 052	8 08	8 0608	8 113	6 36	5 51	8 88	7 20
14	0 6	9 04279	0 708	0 73	9 06 8	9 113	7 36	6 51	9 88	8 20
15	0 6	10 04 79	1 708	1 73	10 06 8	10 113	8 36	7 51	10 88	9 2
16	0 6	11 04279	708	2 73	11 0608	11 113	9 36	8 51	11 88	10 20
17	0 6	1 04 79	3 708	3 73	12 0608	12 113	10 36	9 51	12 88	11 20
18	0 6	13 04279	4 708	4 73	13 608	13 113	11 36	10 51	13 88	12 20
19	0 6	14 04279	5 7 8	5 73	14 0608	14 113	12 36	11 51	14 88	13 20
20	0 6	15 04 79	6 708	6 73	15 608	15 113	13 36	12 51	15 88	14 20
21	0 6	16 04279	7 708	7 73	16 0608	16 113	14 36	13 51	0 25	15 0
22	0 6	0 35377	0 363	0 39	0 3732	0 43	15 36	14 51	1 25	16 20
23	0 6	1 35377	1 363	1 39	1 3732	1 43	16 36	15 51	2 25	0 45
24	0 6	2 35377	363	2 39	373	2 430	0 54	16 51	3 25	1 45
25	0 6	3 35377	3 363	3 39	3 373	3 430	1 54	0 62	4 25	45
26	7	4 35377	4 363	4 39	4 3732	4 430	54	1 6	5 5	3 45
27	0 7	5 35377	5 363	5 39	5 3732	5 430	3 54	2 6	6 25	4 45
28	7	6 35377	6 363	6 39	6 3732	6 430	4 54	3 62	7 25	5 45
29	0 7	7 35377	7 363	7 39	7 3732	7 430	5 54	4 62	8 5	6 45
30	0 7	8 35377	0 019	0 05	8 3732	8 430	6 54	5 6	9 25	7 45
31	0 7	9 35377	1 019	1 05	9 3732	9 430	7 54	6 6	10 25	8 45
Sept 1	0 7	1 35377	019	2 05	10 3732	10 430	8 54	7 6	11 5	9 45
2	7	11 35377	3 019	3 05	11 3732	11 430	9 54	8 62	12 25	10 45
3	0 7	1 35377	4 19	4 5	12 373	12 430	10 54	9 62	13 25	11 45
4	7	13 35377	5 019	5 05	13 373	13 430	11 54	10 62	14 25	12 45
5	0 7	14 35377	6 019	6 5	14 373	14 430	12 54	11 62	15 5	13 45
6	0 7	15 35377	7 019	7 05	15 3732	15 430	13 54	12 62	16 5	14 45
7	0 7	16 35377	8 019	8 5	16 373	16 430	14 54	13 62	0 63	15 45
8	7	0 66476	0 675	0 71	0 6855	0 746	15 54	14 6	1 63	16 45
9	0 7	1 66476	1 675	1 71	1 6855	1 746	16 54	15 62	2 63	70
10	0 7	2 66476	675	2 71	2 6855	746	0 72	16 6	3 63	1 7
11	0 7	3 66476	3 675	3 71	3 6855	3 746	1 72	0 74	4 63	2 7
12	7	4 66476	4 675	4 71	4 6855	4 746	2 72	1 74	5 63	3 70
13	0 7	5 66476	5 675	5 71	5 6855	5 746	3 7	2 74	6 63	4 70
14	7	6 66476	6 675	6 71	6 6855	6 746	4 72	3 74	7 63	5 70
15	0 7	7 66476	7 675	7 71	7 6855	7 746	5 72	4 74	8 63	6 70
16	0 7	8 66476	0 331	36	8 6855	8 746	6 72	5 74	9 63	7 70
17	0 7	9 66476	1 331	1 36	9 6855	9 746	7 7	6 74	10 63	8 70
18	0 7	10 66476	2 331	2 36	1 6855	10 746	8 72	7 74	11 63	9 70
19	0 7	11 66476	3 331	3 36	11 6855	11 746	9 72	8 74	1 63	10 7

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

1	2	3	4	5	6	7	8	9	10	11
Day	Mean Long.	A	B	C	D	E	F	G	H	α
	°	d	d	d	d	d	d	d	d	d
Sept. 20	273·20183	1·78	1·36	0·012	12·584	12·64315	12·211	3·32	10·743	263·0
21	294·77294	0·80	2·36	1·012	13·584	13·64315	13·211	4·32	11·743	264·0
22	316·34405	1·80	3·36	2·012	14·584	14·64315	14·211	5·32	12·743	265·0
23	337·91516	0·83	4·36	3·012	15·584	15·64315	15·211	6·32	13·743	266·0
24	359·48627	1·83	0·85	4·012	16·584	16·64315	16·211	7·32	14·743	267·0
25	21·05738	0·85	1·85	5·012	0·890	0·95269	17·211	8·32	15·743	268·0
26	42·62849	1·85	2·85	6·012	1·890	1·95269	18·211	0·94	16·743	269·0
27	64·19960	0·87	3·85	7·012	2·890	2·95269	19·211	1·94	0·926	270·0
28	85·77071	1·87	0·34	8·012	3·890	3·95269	20·211	2·94	1·926	271·0
29	107·34182	0·89	1·34	9·012	4·890	4·95269	21·211	3·94	2·926	272·0
30	128·91293	1·89	2·34	10·012	5·890	5·95269	22·211	4·94	3·926	273·0
Oct. 1	150·48404	0·91	3·34	11·012	6·890	6·95269	23·211	5·94	4·926	274·0
2	172·05515	1·91	4·34	12·012	7·890	7·95269	24·211	6·94	5·926	275·0
3	193·62626	0·93	0·82	0·489	8·890	8·95269	25·211	7·94	6·926	276·0
4	215·19737	1·93	1·82	1·489	9·890	9·95269	26·211	0·57	7·926	277·0
5	236·76848	0·95	2·82	2·489	10·890	10·95269	27·211	1·57	8·926	278·0
6	258·33959	1·95	3·82	3·489	11·890	11·95269	28·211	2·57	9·926	279·0
7	279·91070	0·97	0·31	4·489	12·890	12·95269	29·211	3·57	10·926	280·0
8	301·48181	1·97	1·31	5·489	13·890	13·95269	30·211	4·57	11·926	281·0
9	323·05292	0·99	2·31	6·489	14·890	14·95269	31·211	5·57	12·926	282·0
10	344·62403	0·02	3·31	7·489	15·890	15·95269	32·211	6·57	13·926	283·0
11	6·19513	1·02	4·31	8·489	0·196	0·26224	33·211	7·57	14·926	284·0
12	27·76624	0·04	0·80	9·489	1·196	1·26224	34·211	0·19	15·926	285·0
13	49·33735	1·04	1·80	10·489	2·196	2·26224	35·211	1·19	0·109	286·0
14	70·90846	0·06	2·80	11·489	3·196	3·26224	36·211	2·19	1·109	287·0
15	92·47957	1·06	3·80	12·489	4·196	4·26224	37·211	3·19	2·109	288·0
16	114·05068	0·08	0·29	0·965	5·196	5·26224	38·211	4·19	3·109	289·0
17	135·62179	1·08	1·29	1·965	6·196	6·26224	39·211	5·19	4·109	290·0
18	157·19290	0·10	2·29	2·965	7·196	7·26224	40·211	6·19	5·109	291·0
19	178·76401	1·10	3·29	3·965	8·196	8·26224	41·211	7·19	6·109	292·0
20	200·33512	0·12	4·29	4·965	9·196	9·26224	42·211	8·19	7·109	293·0
21	221·90623	1·12	0·78	5·965	10·196	10·26224	43·211	0·81	8·109	294·0
22	243·47734	0·14	1·78	6·965	11·196	11·26224	44·211	1·81	9·109	295·0
23	265·04845	1·14	2·78	7·965	12·196	12·26224	45·211	2·81	10·109	296·0
24	286·61956	0·16	3·78	8·965	13·196	13·26224	46·211	3·81	11·109	297·0
25	308·19067	1·16	0·27	9·965	14·196	14·26224	47·211	4·81	12·109	298·0
26	329·76178	0·18	1·27	10·965	15·196	15·26224	48·211	5·81	13·109	299·0
27	351·33289	1·18	2·27	11·965	16·196	16·26224	49·211	6·81	14·109	300·0
28	12·90400	0·21	3·27	0·442	0·501	0·57178	0·052	7·81	15·109	301·0
29	34·47511	1·21	4·27	1·442	1·501	1·57178	1·052	0·44	16·109	302·0
30	56·04622	0·23	0·76	2·442	2·501	2·57178	2·052	1·44	0·292	303·0
31	77·61733	1·23	1·76	3·442	3·501	3·57178	3·052	2·44	1·292	304·0
Nov. 1	99·18844	0·25	2·76	4·442	4·501	4·57178	4·052	3·44	2·292	305·0
2	120·75955	1·25	3·76	5·442	5·501	5·57178	5·052	4·44	3·292	306·0
3	142·33066	0·27	0·25	6·442	6·501	6·57178	6·052	5·44	4·292	307·0
4	163·90177	1·27	1·25	7·442	7·501	7·57178	7·052	6·44	5·292	308·0
5	185·47288	0·29	2·25	8·442	8·501	8·57178	8·052	7·44	6·292	309·0
6	207·04399	1·29	3·25	9·442	9·501	9·57178	9·052	0·06	7·292	310·0
7	228·61509	0·31	4·25	10·442	10·501	10·57178	10·052	1·06	8·292	311·0
8	250·18620	1·31	0·74	11·442	11·501	11·57178	11·052	2·06	9·292	312·0
9	271·75731	0·33	1·74	12·442	12·501	12·57178	12·052	3·06	10·292	313·0
10	293·32842	1·33	2·74	0·919	13·501	13·57178	13·052	4·06	11·292	314·0

In Leap Year diminish the date in Columns 1, 12, by 1 day after Feb. 28.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

	3	4	5	6	7	8	9			
Day	I	J	K	L	M	N	O	P	Q	R
							d	d	d	
Sept 20	0 7	12 66476	4 331	4 36	1 6855	12 746	10 7	9 74	13 63	11 70
21	0 7	13 66476	5 331	5 36	13 6855	13 746	11 7	10 74	14 63	1 70
22	0 7	14 66476	6 331	6 36	14 6855	14 746	12 7	11 74	15 63	13 70
23	0 7	15 66476	7 331	7 36	15 6855	15 746	13 7	1 74	00	14 70
24	0 7	16 66476	8 331	0 02	16 6855	0 63	14 7	13 74	1 00	15 70
25	7	0 97574	0 987	1 0	0 9979	1 063	15 7	14 74	0	16 7
26	0 7	1 97574	1 987	0	1 9979	2 63	16 72	15 74	3 0	94
27	0 7	2 97574	987	3 0	9979	3 063	0 90	16 74	4 0	1 94
28	0 7	3 97574	3 987	4 02	3 9979	4 63	1 90	0 85	5 00	2 94
29	0 7	4 97574	4 987	5 02	4 9979	5 063	90	1 85	6 00	3 94
30	0 7	5 97574	5 987	6 02	5 9979	6 063	3 90	85	7 00	4 94
Oct 1	0 8	6 97574	6 987	7 0	6 9979	7 063	4 90	3 85	8 00	5 94
2	0 8	7 97574	7 987	8 02	7 9979	8 63	5 9	4 85	9 0	6 94
3	0 8	8 97574	0 643	0 68	8 9979	9 63	6 90	5 85	10 00	7 94
4	0 8	9 97574	1 643	1 68	9 9979	10 063	7 90	6 85	11 00	8 94
5	8	10 97574	643	68	10 9979	11 063	8 90	7 85	12 00	9 94
6	8	11 97574	3 643	3 68	11 9979	1 063	9 90	8 85	13 0	10 94
7	0 8	12 97574	4 643	4 68	1 9979	13 063	10 90	9 85	14 0	11 94
8	0 8	13 97574	5 643	5 68	13 9979	14 063	11 90	10 85	15 00	12 94
9	0 8	14 97574	6 643	6 68	14 9979	15 063	12 90	11 85	16 00	13 94
10	0 8	15 97574	7 643	7 68	15 9979	16 063	13 90	12 85	0 38	14 94
11	0 8	0 8672	0 298	0 33	0 3103	0 379	14 9	13 85	1 38	15 94
12	8	1 867	1 98	1 33	1 3103	1 379	15 90	14 85	2 38	0 19
13	0 8	2 2867	2 98	2 33	2 31 3	2 379	0 08	15 85	3 38	1 19
14	0 8	3 867	3 98	3 33	3 31 3	3 379	1 08	16 85	4 38	19
15	0 8	4 8672	4 98	4 33	4 3103	4 379	2 08	97	5 38	3 19
16	0 8	5 867	5 98	5 33	5 3103	5 379	3 08	1 97	6 38	4 19
17	0 8	6 28672	6 98	6 33	6 3103	6 379	4 08	2 97	7 38	5 19
18	0 8	7 867	7 98	7 33	7 3103	7 379	5 08	3 97	8 38	6 19
19	8	8 2867	8 98	8 33	8 3103	8 379	6 08	4 97	9 38	7 19
20	0 8	9 867	0 954	0 99	9 3103	9 379	7 8	5 97	10 38	8 19
21	0 8	10 8672	1 954	1 99	10 3103	10 379	8 08	6 97	11 38	9 19
22	0 8	11 867	2 954	2 99	11 3103	11 379	9 08	7 97	1 38	10 19
23	0 8	12 867	3 954	3 99	12 31 3	1 379	10 08	8 97	13 38	11 19
24	0 8	13 8672	4 954	4 99	13 31 3	13 379	11 08	9 97	14 38	1 19
25	0 8	14 2867	5 954	5 99	14 3103	14 379	12 08	1 97	15 38	13 19
26	0 8	15 867	6 954	6 99	15 31 3	15 379	13 08	11 97	16 38	14 19
27	0 8	16 867	7 954	7 99	16 3103	16 379	14 08	1 97	0 75	15 19
28	0 8	0 59771	0 610	0 65	0 62 7	0 695	15 8	13 97	1 75	16 19
29	0 8	1 59771	1 61	1 65	1 6 7	1 695	16 08	14 97	75	0 44
30	0 8	2 59771	2 610	65	6227	695	0 7	15 97	3 75	1 44
31	0 8	3 59771	3 610	3 65	3 6 7	3 695	1 7	0 09	4 75	2 44
Nov 1	0 8	4 59771	4 610	4 65	4 6 7	4 695	27	1 09	5 75	3 44
2	0 8	5 59771	5 61	5 65	5 6 7	5 695	3 7	09	6 75	4 44
3	0 8	6 59771	6 610	6 65	6 6 27	6 695	4 7	3 09	7 75	5 44
4	0 8	7 59771	7 610	7 65	7 6227	7 695	5 7	4 09	8 75	6 44
5	8	8 59771	0 66	0 30	8 62 7	8 695	6 7	5 09	9 75	7 44
6	0 8	9 59771	1 66	1 30	9 6 7	9 695	7 7	6 09	1 75	8 44
7	0 9	10 59771	266	2 30	1 6 7	10 695	8 27	7 9	11 75	9 44
8	0 9	11 59771	3 266	3 30	11 62 7	11 695	9 27	8 09	12 75	10 44
9	0 9	12 59771	4 266	4 30	1 6 27	1 695	10 27	9 09	13 75	11 44
10	0 9	13 59771	5 66	5 3	13 6 7	13 695	11 7	10 09	14 75	1 44

Tables of Longitude, Latitude, and Radius Vector

X *continued* Motions of Mean Longitude and the Arguments for Days

1	2	3	4	5	6	7	8	9	10	11
Day	Mean Long.	A	B	C	D	E	F	G	H	α
	°	d	d	d	d	d	d	d	d	d
Nov. 11	314·89953	0·35	3·74	1·919	14·501	14·57178	14·052	5·06	12·292	315·0
12	336·47064	1·35	0·23	2·919	15·501	15·57178	15·052	6·06	13·292	316·0
13	358·04175	0·37	1·23	3·919	16·501	16·57178	16·052	7·06	14·292	317·0
14	19·61286	1·37	2·23	4·919	0·807	0·88132	17·052	8·06	15·292	318·0
15	41·18397	0·40	3·23	5·919	1·807	1·88132	18·052	0·68	16·292	319·0
16	62·75508	1·40	4·23	6·919	2·807	2·88132	19·052	1·68	0·475	320·0
17	84·32619	0·42	0·71	7·919	3·807	3·88132	20·052	2·68	1·475	321·0
18	105·89730	1·42	1·71	8·919	4·807	4·88132	21·052	3·68	2·475	322·0
19	127·46841	0·44	2·71	9·919	5·807	5·88132	22·052	4·68	3·475	323·0
20	149·03952	1·44	3·71	10·919	6·807	6·88132	23·052	5·68	4·475	324·0
21	170·61063	0·46	0·20	11·919	7·807	7·88132	24·052	6·68	5·475	325·0
22	192·18174	1·46	1·20	0·396	8·807	8·88132	25·052	7·68	6·475	326·0
23	213·75285	0·48	2·20	1·396	9·807	9·88132	26·052	0·31	7·475	327·0
24	235·32396	1·48	3·20	2·396	10·807	10·88132	27·052	1·31	8·475	328·0
25	256·89507	0·50	4·20	3·396	11·807	11·88132	28·052	2·31	9·475	329·0
26	278·46618	1·50	0·69	4·396	12·807	12·88132	29·052	3·31	10·475	330·0
27	300·03729	0·52	1·69	5·396	13·807	13·88132	30·052	4·31	11·475	331·0
28	321·60840	1·52	2·69	6·396	14·807	14·88132	31·052	5·31	12·475	332·0
29	343·17951	0·54	3·69	7·396	15·807	15·88132	32·052	6·31	13·475	333·0
30	4·75062	1·54	0·18	8·396	0·113	0·19087	33·052	7·31	14·475	334·0
Dec. 1	26·32173	0·56	1·18	9·396	1·113	1·19087	34·052	8·31	15·475	335·0
2	47·89284	1·56	2·18	10·396	2·113	2·19087	35·052	0·93	16·475	336·0
3	69·46395	0·59	3·18	11·396	3·113	3·19087	36·052	1·93	0·657	337·0
4	91·03505	1·59	4·18	12·396	4·113	4·19087	37·052	2·93	1·657	338·0
5	112·60616	0·61	0·67	0·872	5·113	5·19087	38·052	3·93	2·657	339·0
6	134·17727	1·61	1·67	1·872	6·113	6·19087	39·052	4·93	3·657	340·0
7	155·74838	0·63	2·67	2·872	7·113	7·19087	40·052	5·93	4·657	341·0
8	177·31949	1·63	3·67	3·872	8·113	8·19087	41·052	6·93	5·657	342·0
9	198·89060	0·65	0·16	4·872	9·113	9·19087	42·052	7·93	6·657	343·0
10	220·46171	1·65	1·16	5·872	10·113	10·19087	43·052	0·55	7·657	344·0
11	242·03282	0·67	2·16	6·872	11·113	11·19087	44·052	1·55	8·657	345·0
12	263·60393	1·67	3·16	7·872	12·113	12·19087	45·052	2·55	9·657	346·0
13	285·17504	0·69	4·16	8·872	13·113	13·19087	46·052	3·55	10·657	347·0
14	306·74615	1·69	0·65	9·872	14·113	14·19087	47·052	4·55	11·657	348·0
15	328·31726	0·71	1·65	10·872	15·113	15·19087	48·052	5·55	12·657	349·0
16	349·88837	1·71	2·65	11·872	16·113	16·19087	49·052	6·55	13·657	350·0
17	11·45948	0·73	3·65	0·349	0·418	0·50041	50·052	7·55	14·657	351·0
18	33·03059	1·73	0·14	1·349	1·418	1·50041	0·894	0·18	15·657	352·0
19	54·60170	0·75	1·14	2·349	2·418	2·50041	1·894	1·18	16·657	353·0
20	76·17281	1·75	2·14	3·349	3·418	3·50041	2·894	2·18	0·840	354·0
21	97·74392	0·78	3·14	4·349	4·418	4·50041	3·894	3·18	1·840	355·0
22	119·31503	1·78	4·14	5·349	5·418	5·50041	4·894	4·18	2·840	356·0
23	140·88614	0·80	0·63	6·349	6·418	6·50041	5·894	5·18	3·840	357·0
24	162·45725	1·80	1·63	7·349	7·418	7·50041	6·894	6·18	4·840	358·0
25	184·02836	0·82	2·63	8·349	8·418	8·50041	7·894	7·18	5·840	359·0
26	205·59947	1·82	3·63	9·349	9·418	9·50041	8·894	8·18	6·840	360·0
27	227·17058	0·84	0·11	10·349	10·418	10·50041	9·894	0·80	7·840	361·0
28	248·74169	1·84	1·11	11·349	11·418	11·50041	10·894	1·80	8·840	362·0
29	270·31280	0·86	2·11	12·349	12·418	12·50041	11·894	2·80	9·840	363·0
30	291·88391	1·86	3·11	0·826	13·418	13·50041	12·894	3·80	10·840	364·0
31	313·45501	0·88	4·11	1·826	14·418	14·50041	13·894	4·80	11·840	365·0
32	335·02612	1·88	0·60	2·826	15·418	15·50041	14·894	5·80	12·840	366·0

In Leap Year diminish the date in Columns 1, 12, by 1 day after Feb. 28.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

X *continued* **Motions of Mean Longitude and the Arguments for Days**

	3	4	5	6	7	8	9			
D y	I	J	K	L	M	N	O	P	Q	R
			d				d		d	
Nov 11	9	14 59771	6 66	6 30	14 6 7	14 695	12 27	11 09	15 75	13 44
12	0 9	15 59771	7 66	7 30	15 6 7	15 695	13 7	1 9	13	14 44
13	9	16 59771	8 266	8 30	16 6 7	01	14 7	13 9	1 13	15 44
14	9	0 90869	0 9	0 96	935	1 1	15 7	14 9	2 13	16 44
15	0 9	1 9 869	1 9	1 96	1 9350	01	16 7	15 09	3 13	0 68
16	0 9	2 90869	2 9 2	96	9350	3 01	0 45	16 09	4 13	1 68
17	9	3 90869	3 9	3 96	3 9350	4 1	1 45	0 0	5 13	2 68
18	0 9	4 9 869	4 9	4 96	4 9350	5 012	45	1 0	6 13	3 68
19	0 9	5 90869	5 9	5 96	5 9350	6 012	3 45	0	7 13	4 68
20	0 9	6 90869	6 9 2	6 96	6 9350	7 1	4 45	3 0	8 13	5 68
21	0 9	7 9 869	7 92	7 96	7 9350	8 01	5 45	4 0	9 13	6 68
22	0 9	8 90869	0 578	0 6	8 935	9 01	6 45	5 20	10 13	7 68
23	0 9	9 9 869	1 578	1 6	9 9350	10 01	7 45	6 20	11 13	8 68
24	0 9	1 90869	578	62	10 9350	11 01	8 45	7 20	1 13	9 68
25	0 9	11 90869	3 578	3 6	11 935	1 012	9 45	8 0	13 13	10 68
26	0 9	1 90869	4 578	4 62	1 9350	13 012	10 45	9 20	14 13	11 68
27	0 9	13 9 869	5 578	5 62	13 9350	14 01	11 45	10 20	15 13	12 68
28	0 9	14 90869	6 578	6 62	14 9350	15 012	12 45	11 20	16 13	13 68
29	0 9	15 9 869	7 578	7 62	15 9350	16 01	13 45	12 0	0 50	14 68
30	0 9	0 1968	0 234	0 27	0 474	0 328	14 45	13 20	1 50	15 68
Dec 1	0 9	1 21968	1 34	1 27	1 2474	1 3 8	15 45	14 0	2 50	16 68
2	0 9	1968	2 34	2 27	2 2474	2 328	16 45	15 20	3 50	0 93
3	0 9	3 21968	3 234	3 7	3 2474	3 3 8	0 63	16 20	4 50	1 93
4	0 9	4 21968	4 234	4 27	4 474	4 328	1 63	0 32	5 50	93
5	0 9	5 1968	5 34	5 27	5 2474	5 328	63	1 32	6 50	3 93
6	0 9	6 21968	6 234	6 27	6 2474	6 328	3 63	3	7 50	4 93
7	0 9	7 21968	7 234	7 27	7 474	7 328	4 63	3 32	8 50	5 93
8	0 9	8 21968	8 34	8 27	8 474	8 3 8	5 63	4 3	9 50	6 93
9	9	9 1968	0 889	0 93	9 2474	9 328	6 63	5 32	10 5	7 93
10	0 9	10 1968	1 889	1 93	10 2474	10 3 8	7 63	6 32	11 50	8 93
11	9	11 21968	889	2 93	11 474	11 328	8 63	7 32	12 50	9 93
12	0 9	1 1968	3 889	3 93	1 474	12 3 8	9 63	8 3	13 50	10 93
13	1	13 21968	4 889	4 93	13 474	13 328	10 63	9 32	14 50	11 93
14	1 0	14 21968	5 889	5 93	14 2474	14 328	11 63	10 32	15 50	12 93
15	1 0	15 1968	6 889	6 93	15 2474	15 328	12 63	11 3	16 50	13 93
16	1 0	16 21968	7 889	7 93	16 474	16 328	13 63	1 3	0 88	14 93
17	1	0 53 66	0 545	0 59	0 5598	0 645	14 63	13 32	1 88	15 93
18	1	1 53066	1 545	1 59	1 5598	1 645	15 63	14 3	2 88	0 18
19	1 0	2 53066	545	2 59	5598	645	16 63	15 32	3 88	1 18
20	1 0	3 53066	3 545	3 59	3 5598	3 645	0 81	16 3	4 88	2 18
21	1	4 53066	4 545	4 59	4 5598	4 645	1 81	0 43	5 88	3 18
22	1 0	5 53 66	5 545	5 59	5 5598	5 645	2 81	1 43	6 88	4 18
23	0	6 53066	6 545	6 59	6 5598	6 645	3 81	43	7 88	5 18
24	1 0	7 53066	7 545	7 59	7 5598	7 645	4 81	3 43	8 88	6 18
25	1 0	8 53066	0 1	0 4	8 5598	8 645	5 81	4 43	9 88	7 18
26	1 0	9 53066	1 1	1 24	9 5598	9 645	6 81	5 43	10 88	8 18
27	1 0	10 53 66	2 01	4	10 5598	1 645	7 81	6 43	11 88	9 18
28	1	11 53 66	3 01	3 4	11 5598	11 645	8 81	7 43	1 88	10 18
29	1	1 53 66	4 1	4 4	1 5598	1 645	9 81	8 43	13 88	11 18
30	1 0	13 53066	5 01	5 4	13 5598	13 645	10 81	9 43	14 88	12 18
31	1 0	14 53 66	6 2 1	6 24	14 5598	14 645	11 81	10 43	15 88	13 18
32	1 0	15 53 66	7 01	7 24	15 5598	15 645	1 81	11 43	0 5	14 18

Tables of Longitude, Latitude, and Radius Vector

XI Motion of Mean Longitude for Fractions of a Day

1	2	1	2
Day	Mean Long.	Day	Mean Long.
d	°	d	°
0·01	0·21571	0·51	11·00127
·02	0·43142	·52	11·21698
·03	0·64713	·53	11·43269
·04	0·86284	·54	11·64840
·05	1·07856	·55	11·86411
0·06	1·29427	0·56	12·07982
·07	1·50998	·57	12·29553
·08	1·72569	·58	12·51124
·09	1·94140	·59	12·72695
·10	2·15711	·60	12·94267
0·11	2·37282	0·61	13·15838
·12	2·58853	·62	13·37409
·13	2·80424	·63	13·58980
·14	3·01996	·64	13·80551
·15	3·23567	·65	14·02122
0·16	3·45138	0·66	14·23693
·17	3·66709	·67	14·45264
·18	3·88280	·68	14·66835
·19	4·09851	·69	14·88407
·20	4·31422	·70	15·09978
0·21	4·52993	0·71	15·31549
·22	4·74564	·72	15·53120
·23	4·96136	·73	15·74691
·24	5·17707	·74	15·96262
·25	5·39278	·75	16·17833
0·26	5·60849	0·76	16·39404
·27	5·82420	·77	16·60975
·28	6·03991	·78	16·82547
·29	6·25562	·79	17·04118
·30	6·47133	·80	17·25689
0·31	6·68704	0·81	17·47260
·32	6·90276	·82	17·68831
·33	7·11847	·83	17·90402
·34	7·33418	·84	18·11973
·35	7·54989	·85	18·33544
0·36	7·76560	0·86	18·55115
·37	7·98131	·87	18·76687
·38	8·19702	·88	18·98258
·39	8·41273	·89	19·19829
·40	8·62844	·90	19·41400
0·41	8·84415	0·91	19·62971
·42	9·05987	·92	19·84542
·43	9·27558	·93	20·06113
·44	9·49129	·94	20·27684
·45	9·70700	·95	20·49255
0·46	9·92271	0·96	20·70827
·47	10·13842	·97	20·92398
·48	10·35413	·98	21·13969
·49	10·56984	·99	21·35540
0·50	10·78555	1·00	21·57111

1	2	1	2
Day	Mean Long.	Day	Mean Long.
d	°	d	°
0·0001	0·00216	0·0051	0·11001
2	431	52	·11217
3	647	53	·11433
4	863	54	·11648
5	1079	55	·11864
0·0006	0·01294	0·0056	0·12080
7	1510	57	·12296
8	1726	58	·12511
9	1941	59	·12727
10	2157	60	·12943
0·0011	0·02373	0·0061	0·13158
12	2589	62	·13374
13	2804	63	·13590
14	3020	64	·13806
15	3236	65	·14021
0·0016	0·03451	0·0066	0·14237
17	3667	67	·14453
18	3883	68	·14668
19	4099	69	·14884
20	4314	70	·15100
0·0021	0·04530	0·0071	0·15315
22	4746	72	·15531
23	4961	73	·15747
24	5177	74	·15963
25	5393	75	·16178
0·0026	0·05608	0·0076	0·16394
27	5824	77	·16610
28	6040	78	·16825
29	6256	79	·17041
30	6471	80	·17257
0·0031	0·06687	0·0081	0·17473
32	6903	82	·17688
33	7118	83	·17904
34	7334	84	·18120
35	7550	85	·18336
0·0036	0·07766	0·0086	0·18551
37	7981	87	·18767
38	8197	88	·18983
39	8413	89	·19198
40	8628	90	·19414
0·0041	0·08844	0·0091	0·19630
42	9060	92	·19845
43	9276	93	·20061
44	9491	94	·20277
45	9707	95	·20493
0·0046	0·09923	0·0096	0·20708
47	·10138	97	·20924
48	·10354	98	·21140
49	·10570	99	·21355
0·0050	0·10786	0·0100	0·21571

For Arguments A—R, the fraction of a day must be added as a correction to the entries of columns 3–22 of Table X.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

Equations of Longitude

XII

A	Equation	3 Δ 0 01
d 0 00	0 00100	+2 0
04	107	2 0
08	115	1 9
12	12	1 6
16	1 8	1 5
20	134	1 5
0 24	0140	+1 4
28	145	1 1
32	149	1 0
36	153	0 8
40	155	5
0 44	00157	+0 4
48	158	+0 1
52	158	−0 1
56	157	0 4
60	155	6
0 64	0 00152	−0 9
68	148	1 0
72	144	1 1
76	139	1 4
80	133	1 5
0 84	0 001 7	−1 6
88	1 0	1 8
92	113	1 9
96	105	1 9
1 00	98	1 8
1 04	0 00091	−1 8
08	84	1 8
12	77	1 8
16	70	1 6
20	64	1 4
1 24	0 00059	−1 3
28	54	1 1
32	50	0 9
36	47	0 8
40	44	0 5
1 44	00043	−0 3
48	42	−0 1
52	4	+0 3
56	44	0 5
60	46	6
1 64	0 00049	+0 9
68	53	1 1
72	58	1 3
76	63	1 4
80	69	1 5
1 84	0 00075	+1 6
88	8	1 8
92	89	1 9
96	97	1 9
2 00	00104	+1 9

C t t + ∞

XIII

B	Equation	3 Δ
0 0	0010	+ 7
1	1 7	7
2	114	7
3	121	7
4	1 7	6
5	133	6
0 6	0 00138	+ 5
7	142	4
8	146	3
9	148	2
1 0	150	
1 1	0 00151	+ 1
2	151	− 1
3	15	
4	147	3
5	144	4
1 6	0 0014	− 5
7	135	5
8	130	6
9	124	6
2 0	118	7
2 1	0 00111	− 7
2	104	7
3	97	7
4	90	7
5	83	7
2 6	00076	− 7
7	70	6
8	65	5
9	60	5
3 0	56	4
3 1	0 00053	− 3
2	50	2
3	49	− 1
4	49	+ 1
5	5	
3 6	0 00051	+
7	54	3
8	57	4
9	62	5
4 0	67	5
4 1	0 0 072	+ 6
2	78	7
3	85	7
4	92	7
5	99	7
4 6	001 6	+ 7
7	113	7
8	120	7
9	1 6	6
5 0	0013	+ 6

C t t ∔ ∞

XIV

C	Equation	3 Δ	C	Equation	3 Δ	C	Equation	3 Δ
0 0	0 003 0	− 28	d 5 0	0 00 55	+ 6	l 10 0	0 00563	+ 9
1	72	8	1	60	5	1	571	8
2	44	28	2	265	5	2	578	7
3	17	7	3	70	5	3	585	6
4	190	26	4	74	4	4	590	5
5	165	25	5	278	4	5	594	4
0 6	0 00141	− 24	5 6	0 00282	+ 4	10 6	0 00597	+ 3
7	118		7	85	3	7	599	+ 1
8	97	0	8	88	3	8	599	− 1
9	79	18	9	91	3	9	597	3
1 0	6	16	6 0	294	3	11 0	593	5
1 1	00047	− 14	6 1	0 00296	+ 2	11 1	0 00587	− 7
2	34	12	2	98	3	2	579	9
3	3	0	3	3 1	3	3	569	12
4	15	7	4	303	3	4	556	14
5	9	6	5	306	3	5	542	15
1 6	0 00004	− 4	6 6	0 00308	+ 3	11 6	0 00526	− 18
7		− 2	7	311	3	7	507	0
8	1	0	8	314	3	8	487	21
9	2	+	9	317	4	9	465	23
2 0	5	4	7 0	321	4	12 0	441	25
2 1	0 00009	+ 5	7 1	0 00325	+ 4	12 1	0 00416	− 26
2	14	6	2	329	5	2	390	7
3		7	3	334	5	3	363	28
4	8	8	4	339	5	4	335	28
5	36	8	5	344	6	5	307	9
2 6	0 00044	+ 9	7 6	0 00350	+ 6	12 6	0 00278	− 9
7	53	10	7	356	7	7	50	28
8	63	10	8	363	7	8	23	27
9	73	10	9	370	7	9	196	6
3 0	83	10	8 0	377	8	13 0	171	25
3 1	0 00 93	+ 10	8 1	0 00385	+ 8	13 1	0 00146	− 24
2	103	10	2	393	8	2	1 3	2
3	113	10	3	401	8	3	102	0
4	1 3	10	4	409	9	4	83	19
5	133	10	5	418	9	5	65	17
3 6	0 00143	+ 10	8 6	0 04 7	+ 9	13 6	0 00050	− 14
7	153	1	7	436	9	7	37	1
8	16	9	8	445	10	8	26	10
9	171	9	9	455	10	9	17	8
4 0	18	9	9 0	464	1	14 0	10	6
4 1	0 00189	+ 9	9 1	0 00474	+ 10	14 1	0 00 05	− 4
2	197	8	2	484	11	2		2
3	205	8	3	495	11	3	1	− 1
4	213	8	4	5 5	10	4	1	+ 2
5	2 1	8	5	515	10	5	4	4
4 6	0 00228	+ 7	9 6	0525	+ 10	14 6	0 00008	+ 5
7	35	7	7	535	1	7	13	6
8	242	7	8	545	10	8	19	7
9	249	7	9	554	9	9	26	7
5 0	00255	+ 6	10 0	00563	+ 9	15 0	0 00033	+ 7

Appl d C t t + 00300

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

XV — Equation of Longitude — Argument D

1	2	3	1	2	3	1	2	3	1	2	3
D	Equation	Δ	**D**	Equation	Δ	**D**	Equation	Δ	**D**	Equation	Δ
d	°		d	°		d	°		d	°	
0·0	0·02200	− 78	**5·0**	0·00221	+ 24	**10·0**	0·03411	+ 64	**15·0**	0·03438	− 63
·1	2122	78	**·1**	246	27	**·1**	3474	62	**·1**	3374	65
·2	2044	78	**·2**	274	30	**·2**	3535	60	**·2**	3309	66
·3	1966	78	**·3**	305	33	**·3**	3594	58	**·3**	3242	68
·4	1888	77	**·4**	339	35	**·4**	3651	56	**·4**	3173	70
·5	1811	76	**·5**	375	37	**·5**	3706	54	**·5**	3103	71
0·6	0·01735	− 76	**5·6**	0·00413	+ 40	**10·6**	0·03759	+ 52	**15·6**	0·03032	− 72
·7	1659	76	**·7**	455	43	**·7**	3810	50	**·7**	2960	73
·8	1584	75	**·8**	498	45	**·8**	3858	47	**·8**	2887	74
·9	1509	74	**·9**	545	48	**·9**	3904	45	**·9**	2812	75
1·0	1436	73	**6·0**	593	50	**11·0**	3948	43	**16·0**	2737	76
1·1	0·01364	− 72	**6·1**	0·00644	+ 52	**11·1**	0·03989	+ 40	**16·1**	0·02661	− 76
·2	1293	71	**·2**	697	54	**·2**	4027	37	**·2**	2585	77
·3	1223	69	**·3**	752	56	**·3**	4063	35	**·3**	2507	78
·4	1155	68	**·4**	809	58	**·4**	4097	33	**·4**	2430	77
·5	1088	67	**·5**	868	60	**·5**	4128	30	**·5**	2352	78
1·6	0·01022	− 65	**6·6**	0·00929	+ 62	**11·6**	0·04156	+ 27	**16·6**	0·02274	− 78
·7	959	63	**·7**	992	64	**·7**	4181	24	**·7**	2196	79
·8	897	61	**·8**	1057	66	**·8**	4203	21	**·8**	2117	78
·9	837	59	**·9**	1123	67	**·9**	4223	18	**·9**	2039	78
2·0	779	57	**7·0**	1191	69	**12·0**	4239	15	**17·0**	1962	77
2·1	0·00723	− 55	**7·1**	0·01260	+ 70	**12·1**	0·04253	+ 13	**17·1**	0·01884	− 78
·2	669	53	**·2**	1330	71	**·2**	4264	10	**·2**	1807	77
·3	617	51	**·3**	1402	72	**·3**	4272	7	**·3**	1730	77
·4	567	49	**·4**	1475	73	**·4**	4277	4	**·4**	1654	76
·5	520	46	**·5**	1548	74	**·5**	4279	+ 1	**·5**	1579	75
2·6	0·00475	− 44	**7·6**	0·01623	+ 75	**12·6**	0·04278	− 2	**17·6**	0·01505	− 74
·7	433	41	**·7**	1699	76	**·7**	4274	5	**·7**	1432	73
·8	393	39	**·8**	1775	77	**·8**	4268	8	**·8**	1360	72
·9	355	36	**·9**	1852	77	**·9**	4258	11	**·9**	1289	71
3·0	321	33	**8·0**	1929	78	**13·0**	4245	14	**18·0**	1219	69
3·1	0·00289	− 31	**8·1**	0·02007	+ 78	**13·1**	0·04230	− 17	**18·1**	0·01151	− 68
·2	259	28	**·2**	2085	78	**·2**	4211	20	**·2**	1084	66
·3	233	25	**·3**	2163	78	**·3**	4190	23	**·3**	1019	65
·4	209	23	**·4**	2241	79	**·4**	4166	26	**·4**	955	63
·5	187	20	**·5**	2320	78	**·5**	4139	28	**·5**	893	61
3·6	0·00169	− 18	**8·6**	0·02398	+ 78	**13·6**	0·04110	− 31	**18·6**	0·00833	− 59
·7	154	14	**·7**	2475	77	**·7**	4078	34	**·7**	775	57
·8	142	11	**·8**	2553	78	**·8**	4043	37	**·8**	720	55
·9	132	9	**·9**	2630	77	**·9**	4005	39	**·9**	666	53
4·0	125	5	**9·0**	2706	76	**14·0**	3965	42	**19·0**	614	51
4·1	0·00122	− 2	**9·1**	0·02781	+ 75	**14·1**	0·03922	− 44	**19·1**	0·00564	− 49
·2	121	+ 1	**·2**	2856	75	**·2**	3878	46	**·2**	517	46
·3	123	4	**·3**	2930	74	**·3**	3830	49	**·3**	473	44
·4	129	7	**·4**	3002	73	**·4**	3780	51	**·4**	430	42
·5	137	10	**·5**	3074	71	**·5**	3728	53	**·5**	390	39
4·6	0·00148	+ 13	**9·6**	0·03144	+ 70	**14·6**	0·03674	− 55	**19·6**	0·00353	− 36
·7	162	15	**·7**	3213	69	**·7**	3618	57	**·7**	319	33
·8	178	18	**·8**	3281	67	**·8**	3560	59	**·8**	287	31
·9	198	22	**·9**	3347	65	**·9**	3500	61	**·9**	257	28
5·0	0·00221	+ 24	**10·0**	0·03411	+ 64	**15·0**	0·03438	− 63	**20·0**	0·00231	− 25

Applied Constant: +0°·02200.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

XVI — **Equation of Longitude** — **Argument E**

		3	4			3	4			3	4			3	4
E	Equation	Δ 0.01	½ Δ²	E	Equation	Δ 0ᵈ 01	½ Δ²	E	Equation	Δ 0.01	½ Δ²	E	Equation	Δ 0.01	½ Δ²
d 0 00	0 88000	+321 0	0	2 50	1 56655	+186 4	−0 5	5 00	68198	− 99 9	−0 6	d 7 50	1 14 03	−299 7	−0
05	896 5	3 09	0	55	1 57575	181 5	0 5	05	1 67685	105 5	0 6	55	1 1 700	301 5	0 2
10	91 09	32 7		60	1 5847	176 4	0 5	10	1 67143	111 1	0 5	60	1 11188	3 3	0
15	9281	3 4	0 0	65	1 59339	171	0 5	15	1 66574	116 5	0 5	65	09668	304 7	1
20	94413	3 0		70	1 6 18	166 1	0 5	20	1 65978	121 9	0 5	70	1 08141	306 1	0 1
25	96 1	319 5	−0 1	75	1 61 0	161 0	0 5	25	1 65355	1 7 4	0 5	75	1 066 7	307 6	0 1
0 30	97608	+318 9	− 1	2 80	1 6179	+155 7	0 5	5 30	1 64704	−132 9	−0 5	7 80	1 5065	−308 9	−0 1
35	99 1	318 1	0 1	85	1 6 557	150 3	0 5	35	1 640 6	138 3	0 5	85	1 03518	309 8	1
40	1 0 789	317 2	1	90	1 63 95	145 0	0 5	40	1 63321	143 6	0 5	90	1 01967	310 7	0 1
45	1 373	316 3	1	95	1 64007	139 8	0 6	45	1 6 590	148 7	0 5	95	1 00411	311 7	1
50	1 0395	315 3	−0 1	3 00	1 64693	134 2	0 6	50	1 61834	154 0	0 5	8 00	0 98850	312 6	0 1
0 55	1 5526	+314 0	−0	3 05	1 65349	+1 8 4	−0 6	5 55	1 61 50	−159	0 5	8 05	0 97 85	−313	−0 1
60	1 07 9	31 5	0	10	1 65977	1 3	0 6	60	1 60 42	164	0 5	10	95718	313 8	−0 1
65	1 08651	311 0	0	15	1 66579	117 5	0 6	65	1 59410	169 1	0 5	15	94147	314 4	0 0
70	1 10 0	309 5	0	20	1 6715	111 6	0 6	70	1 58551	174	5	20	9 574	314 8	0 0
75	1 746	307 9		25	1 67695	106 0	0 6	75	1 57668	179	0 5	25	90999	315 0	0 0
0 80	1 13281	+306 0	−	3 30	1 68 1	+100 4	−0 6	5 80	1 56759	−184 0	−0 5	8 30	0 894 4	−315 1	0 0
85	1 148 6	304	0	35	1 68699	94 5	0 6	85	1 55828	188 5	0 5	35	87848	315 1	0 0
90	1 16323	30 3	0 2	40	1 69157	88 7	0 6	90	1 54874	193 3	0 5	40	86273	315 1	0
95	1 178 9	300	0 2	45	1 69586	83 0	0 6	95	1 53895	198 1	0 5	45	84699	314 8	0 0
1 00	1 193 4	98 0	0	50	1 69987	77 3	0 6	6 00	1 52893	0 6	0 4	50	831 5	314 6	0 0
1 05	1 0808	+295 7	−0	3 55	1 70359	+ 71 3	−0 6	6 05	1 51869	−206 9	−0 4	8 55	0 81553	−314 2	0 0
10	1 81	93 3	3	60	1 7070	65	0 6	10	1 5 824	211 4	0 4	60	79983	313 7	+0 1
15	1 3741	90 7	0 3	65	1 71011	59 4	6	15	1 49755	215 9	0 4	65	78416	313 1	0 1
20	1 5188	287 9	3	70	1 71 94	53 6	0 6	20	1 48665	220 0	4	70	7685	312 4	1
25	1 6620	85 2	0 3	75	1 71547	47 6	0 6	25	1 47555	24 0	0 4	75	75292	311 6	0 1
1 30	1 8 40	+ 82 4	−0 3	3 80	1 71770	+ 41 7	−0 6	6 30	1 464 5	−2 8	−0 4	8 80	0 73736	−310 6	+0 1
35	1 29444	279 4	0 3	85	1 71964	35 8	0 6	35	1 45 73	32 3	0 4	85	72186	309 6	0 1
40	1 3 834	76 3	3	90	1 721 8	29 7	6	40	1 44101	36 3	0 4	90	70640	3 86	0 1
45	1 3 07	73 0	0 3	95	1 7 261	3 5	0 6	45	1 4 910	240 0	0 4	95	69100	307	0 1
50	1 33564	69 8	0 3	4 00	1 7 363	17 6	0 6	50	1 41701	243 7	0 4	9 00	(7568	305 7	0 1
1 55	1 349 5	+ 66 6	−0 3	4 05	1 7 437	+ 11 7	−0 6	6 55	1 40473	−247 7	−0 4	9 05	0 66043	−304 3	+0 1
60	1 36 30	63 1	0 4	10	1 72480	+ 5 7	0 6	60	1 39226	251 3	0 3	10	64525	302 8	0
65	1'37536	259 5	0 4	15	1 7 494	− 0	0 6	65	1 37962	254 5	0 3	15	63015	301 1	0 2
70	1 388 5	56 0	0 4	20	1 7 478	6 2	0 6	70	1 36681	258 0	0 3	20	61514	99 4	0
75	1 4 096	5 4	0 4	25	1 7 43	12 1	0 6	75	1 3538	61 4	0 3	25	60021	297 6	2
1 80	1 41349	+ 48 4	−0 4	4 30	1 7 357	− 18 1	−0 6	6 80	1 34067	−264 6	0 3	9 30	58538	295 6	+0 2
85	1 4 581	44 4	4	35	1 72251	4 1	6	85	1 32736	67 8	3	35	57 65	293 5	0 2
90	43793	40 5	4	40	1 7 116	3 1	0 6	90	1 31389	70 7	0 3	40	556 3	91 3	0 2
95	44986	36 5	0 4	45	1 7195	36 1	0 6	95	1 300 9	73 5	0 3	45	5415	289 0	2
2 00	1 46158	32 3	0 4	50	1 71755	4 0	0 6	7 00	1 28654	276 5	0 3	50	5 713	286 6	2
2 05	1 473 9	+2 8 1	−0 4	4 55	1 7153	− 47 9	−0 6	7 05	1 27 64	−279 3	−0 3	9 55	0 51 86	−284 1	+0 3
10	1 48439	223 7	0 4	60	1 71 76	53 8	6	10	1 25861	8 0	0 3	60	4987	281 5	3
15	1 49546	19 3	4	65	1 7099	59 6	6	15	1 24444	84 7	0 3	65	48471	78 8	0 3
20	1 5 63	14 8	0 5	70	1 70680	65 4	0 6	20	1 3014	87 1	0 2	70	47084	276 0	3
25	1 51694	10 1	5	75	1 70338	71 3	0 6	25	1 1573	289 4	0 2	75	45711	273 2	0 3
2 30	1 5 733	+ 5 6	− 5	4 80	1 69967	− 77 0	−0 6	7 30	1 201	− 91 7	−	9 80	0 44352	− 7 3	+0 3
35	1 5375	1 0	0 5	85	1 69568	82 6	6	35	1 18656	93 8	0 2	85	43008	267	3
40	1 54743	196 1	0 5	90	1 69141	88 4	6	40	1 1718	295 9	0	90	41680	64 0	0 3
45	1 55711	191	0 5	95	1 68684	94 3	0 6	45	1 15697	97 9		95	4 368	260 8	0 3
2 50	1 56655	+186 4	− 5	5 00	1 68198	− 99 9	−0 6	7 50	1 14203	−299 7	−0 2	10 00	0 39072	−257 6	+0 3

Tables of Longitude, Latitude, and Radius Vector

XVI *continued* — **Equation of Longitude** — **Argument E**

1	2	3	4
E	Equation	Δ 0^{d}·01	$\frac{1}{2}\Delta^2$
d	°		
10·00	0·39072	−257,5	+0,3
·05	·37793	254,0	0,4
·10	·36532	250,4	0,4
·15	·35289	246,9	0,4
·20	·34063	243,4	0,4
·25	·32855	239,6	0,4
10·30	0·31667	−235,7	+0,4
·35	·30500	231,4	0,4
·40	·29353	227,2	0,4
·45	·28226	223,4	0,4
·50	·27119	219,2	0,4
10·55	0·26034	−214,8	+0,4
·60	·24971	210,5	0,4
·65	·23929	206,1	0,5
·70	·22910	201,6	0,5
·75	·21913	197,0	0,5
10·80	0·20940	−192,3	+0,5
·85	·19990	187,8	0,5
·90	·19062	183,1	0,5
·95	·18159	178,0	0,5
11·00	·17282	173,0	0,5
11·05	0·16429	−168,2	+0,5
·10	·15600	163,2	0,5
·15	·14797	158,0	0,5
·20	·14020	152,9	0,5
·25	·13268	147,8	0,5
11·30	0·12542	−142,6	+0,5
·35	·11842	137,3	0,5
·40	·11169	132,0	0,5
·45	·10522	126,6	0,6
·50	·09903	120,9	0,6
11·55	0·09313	−115,3	+0,6
·60	8750	109,9	0,6
·65	8214	104,4	0,6
·70	7706	98,7	0,6
·75	7227	93,1	0,6
11·80	0·06775	− 87,5	+0,6
·85	6352	81,7	0,6
·90	5958	76,0	0,6
·95	5592	70,3	0,6
12·00	5255	64,3	0,6
12·05	0·04949	− 58,4	+0,6
·10	4671	52,6	0,6
·15	4423	46,8	0,6
·20	4203	40,9	0,6
·25	4014	34,8	0,6
12·30	0·03855	− 28,8	+0,6
·35	3726	22,9	0,6
·40	3626	17,0	0,6
·45	3556	11,1	0,6
12·50	0·03515	− 5,2	+0,6

1	2	3	4
E	Equation	Δ 0^{d}·01	$\frac{1}{2}\Delta^2$
d	°		
12·50	0·03515	− 5,2	+0,6
·55	3504	+ 0,8	0,6
·60	3523	7,0	0,6
·65	3574	13,1	0,6
·70	3654	18,9	0,6
·75	3763	24,8	0,6
12·80	0·03902	+ 30,8	+0,6
·85	4071	36,8	0,6
·90	4270	42,8	0,6
·95	4499	48,8	0,6
13·00	4758	54,7	0,6
13·05	0·05046	+ 60,5	+0,6
·10	5363	66,5	0,6
·15	5711	72,4	0,6
·20	6087	78,2	0,6
·25	6493	84,2	0,6
13·30	0·06929	+ 89,9	+0,6
·35	7392	95,5	0,6
·40	7884	101,4	0,6
·45	8406	107,1	0,6
·50	8955	112,7	0,6
13·55	0·09533	+118,4	+0,6
·60	·10139	124,0	0,6
·65	·10773	129,6	0,6
·70	·11435	135,1	0,5
·75	·12124	140,4	0,5
13·80	0·12839	+145,9	+0,5
·85	·13583	151,5	0,5
·90	·14354	156,8	0,5
·95	·15151	162,0	0,5
14·00	·15974	167,2	0,5
14·05	0·16823	+172,3	+0,5
·10	·17697	177,1	0,5
·15	·18596	182,3	0,5
·20	·19520	187,2	0,5
·25	·20468	192,2	0,5
14·30	0·21442	+197,2	+0,5
·35	·22440	201,9	0,5
·40	·23461	206,5	0,5
·45	·24505	211,2	0,5
·50	·25573	215,8	0,4
14·55	0·26663	+220,2	+0,4
·60	·27775	224,6	0,4
·65	·28909	228,8	0,4
·70	·30063	233,0	0,4
·75	·31239	237,2	0,4
14·80	0·32435	+241,3	+0,4
·85	·33652	245,3	0,4
·90	·34888	249,1	0,4
·95	·36143	252,9	0,4
15·00	0·37417	+256,7	+0,4

1	2	3	4
E	Equation	Δ 0^{d}·01	$\frac{1}{2}\Delta^2$
d	°		
15·00	0·37417	+256,7	+0,4
·05	·38710	260,3	0,3
·10	·40020	263,7	0,3
·15	·41347	267,1	0,3
·20	·42691	270,4	0,3
·25	·44051	273,7	0,3
15·30	0·45428	+276,9	+0,3
·35	·46820	279,9	0,3
·40	·48227	283,0	0,3
·45	·49650	286,0	0,3
·50	·51087	288,7	0,3
15·55	0·52537	+291,0	+0,2
·60	·53998	293,4	0,2
·65	·55471	295,8	0,2
·70	·56956	298,3	0,2
·75	·58454	300,7	0,2
15·80	0·59963	+302,8	+0,2
·85	·61482	304,7	0,2
·90	·63010	306,5	0,2
·95	·64547	308,2	0,2
16·00	·66092	309,9	0,2
16·05	0·67646	+311,6	+0,2
·10	·69208	312,9	0,1
·15	·70775	314,1	0,1
·20	·72349	315,4	0,1
·25	·73929	316,5	0,1
16·30	0·75514	+317,4	+0,1
·35	·77103	318,2	0,1
·40	·78696	319,0	0,1
·45	·80294	319,7	+0,1
·50	·81893	320,2	0,0
16·55	0·83495	+320,5	0,0
·60	·85098	320,7	0,0
·65	·86702	320,9	0,0
·70	·88307	321,0	0,0
·75	·89912	320,9	0,0
16·80	0·91516	+320,6	0,0
·85	·93118	320,3	0,0
·90	·94719	319,9	−0,1
·95	·96317	319,4	0,1
17·00	·97913	318,8	0,1
17·05	0·99505	+317,9	−0,1
·10	1·01092	317,0	0,1
·15	1·02675	316,1	0,1
·20	1·04253	314,9	0,1
·25	1·05824	313,6	0,1
17·30	1·07389	+312,3	−0,1
·35	1·08947	310,9	0,1
·40	1·10498	309,3	0,2
·45	1·12040	307,5	0,2
17·50	1·13573	+305,7	−0,2

1	2	3	4
E	Equation	Δ 0^{d}·01	$\frac{1}{2}\Delta^2$
d	°		
17·50	1·13573	+305,7	−0,2
·55	1·15097	303,9	0,2
·60	1·16612	302,0	0,2
·65	1·18117	299,8	0,2
·70	1·19610	297,5	0,2
·75	1·21092	295,2	0,2
17·80	1·22562	+292,6	−0,3
·85	1·24018	290,0	0,3
·90	1·25462	287,5	0,3
·95	1·26893	284,8	0,3
18·00	1·28310	281,9	0,3
18·05	1·29712	+278,8	−0,3
·10	1·31098	275,7	0,3
·15	1·32469	272,6	0,3
·20	1·33824	269,2	0,3
·25	1·35161	265,8	0,3
18·30	1·36482	+262,5	−0,3
·35	1·37786	259,0	0,4
·40	1·39072	255,3	0,4
·45	1·40339	251,4	0,4
·50	1·41586	247,6	0,4
18·55	1·42815	+243,9	−0,4
·60	1·44025	239,8	0,4
·65	1·45213	235,6	0,4
·70	1·46381	231,5	0,4
·75	1·47528	227,3	0,4
18·80	1·48654	+222,8	−0,4
·85	1·49756	218,3	0,4
·90	1·50837	214,0	0,4
·95	1·51896	209,5	0,5
19·00	1·52932	204,7	0,5
19·05	1·53943	+199,9	−0,5
·10	1·54931	195,3	0,5
·15	1·55896	190,4	0,5
·20	1·56835	185,3	0,5
·25	1·57749	180,3	0,5
19·30	1·58638	+175,4	−0,5
·35	1·59503	170,4	0,5
·40	1·60342	165,1	0,5
·45	1·61154	159,8	0,5
·50	1·61940	154,7	0,5
19·55	1·62701	+149,4	−0,5
·60	1·63434	143,9	0,5
·65	1·64140	138,3	0,6
·70	1·64817	132,9	0,6
·75	1·65469	127,6	0,6
19·80	1·66093	+121,9	−0,6
·85	1·66688	116,2	0,6
·90	1·67255	110,9	0,6
·95	1·67797	105,3	0,6
20·00	1·68308	+ 99,1	−0,6

Applied Constant: +0°·88000.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

XVII Equations of Longitude XVIII

XVII

		3			3
F	Equation	Δ 0 1	**F**	Equ tion	Δ 1
0 0	0 001 0	+ 1 3	**30 0**	0 004	− 1 0
0 6	108	1 3	**30 6**	36	0 9
1 2	115	1	**31 2**	31	0 8
1 8	1	1 3	**31 8**	26	0 8
2 4	130	1 3	**32 4**	21	0 8
3 0	137	1	**33 0**	16	0 7
3 6	0 0144	+ 1 1	**33 6**	0 00012	− 0 6
4 2	15	1 1	**34 2**	9	0 5
4 8	157	1 1	**34 8**	6	0 4
5 4	163	0 9	**35 4**	4	0 3
6 0	168	0 9	**36 0**		0 3
6 6	0 0 174	+ 0 9	**36 6**	0 00001	− 0
7 2	179	0 8	**37 2**	0	− 0 1
7 8	183	0 7	**37 8**	0	0 0
8 4	187	0 6	**38 4**	0	+ 0 1
9 0	190	0 5	**39 0**	1	0 3
9 6	0 00193	+ 0 5	**39 6**	0 00003	+ 0 3
10 2	196	0 4	**40 2**	5	0 4
10 8	198	0 3	**40 8**	8	0 5
11 4	199	0	**41 4**	11	6
12 0	2 0	+ 0 1	**42 0**	15	0 7
12 6	0 002 0	0 0	**42 6**	0 00019	+ 0 7
13 2	200	− 0 1	**43 2**	23	0 8
13 8	199	0 3	**43 8**	28	0 9
14 4	197	0 3	**44 4**	34	1 0
15 0	195	0 3	**45 0**	40	1 0
15 6	0 0193	− 0 4	**45 6**	0 00046	+ 1 0
16 2	190	0 6	**46 2**	52	1 1
16 8	186	0 7	**46 8**	59	1
17 4	18	0 7	**47 4**	66	1 2
18 0	178	0 8	**48 0**	73	1 3
18 6	0 00173	− 0 9	**48 6**	0 00081	+ 1 3
19 2	167	1 0	**49 2**	88	1 2
19 8	161	1 0	**49 8**	95	1 3
20 4	155	1 0	**50 4**	103	1 3
21 0	149	1 1	**51 0**	111	1 3
21 6	0 0014	− 1 2	**51 6**	0 0 118	+ 1
22 2	135	1	**52 2**	125	1 3
22 8	128	1	**52 8**	133	1 3
23 4	121	1 3	**53 4**	140	1 1
24 0	113	1 3	**54 0**	146	1 1
24 6	0 00106	− 1 3	**54 6**	0 00153	+ 1 1
25 2	98	1 3	**55 2**	159	1 0
25 8	91	1 3	**55 8**	165	1 0
26 4	83	1 3	**56 4**	171	0 9
27 0	76	1 2	**57 0**	176	0 8
27 6	0 00069	− 1	**57 6**	0 0018	+ 0 7
28 2	62	1 2	**58 2**	184	0 7
28 8	55	1	**58 8**	188	0 6
29 4	48	1 1	**59 4**	191	0 5
30 0	0 0004	− 1 0	**60 0**	0 00194	+ 0 5

Appli d C t t + ∞ ∞

XVIII

		3			3
G	Equati n	Δ 0d 1	**G**	Equation	Δ 0d 1
0 0	0 00150	+ 9	d **5 0**	0 00082	− 7
1	159	9	**1**	75	7
2	168	9	**2**	68	7
3	177	9	**3**	62	6
4	185	9	**4**	56	6
5	194	9	**5**	51	5
0 6	0 0020	+ 8	**5 6**	0 00046	− 5
7	210	8	**7**	4	4
8	217	7	**8**	39	3
9	24	7	**9**	36	3
1 0	231	7	**6 0**	34	2
1 1	0 00 37	+ 6	**6 1**	0 0003	− 2
2	43	6	**2**	31	− 1
3	248	5	**3**	31	0
4	53	5	**4**	31	+ 1
5	57	4	**5**	32	2
1 6	0 00261	+ 4	**6 6**	0 00034	+ 3
7	64	3	**7**	37	3
8	66	2	**8**	40	3
9	268	2	**9**	43	4
2 0	269	+ 1	**7 0**	48	5
2 1	0 00269	0	**7 1**	0 00053	+ 5
2	269	− 1	**2**	58	6
3	268	2	**3**	64	6
4	266	2	**4**	7	7
5	264	3	**5**	77	7
2 6	0 00261	− 4	**7 6**	0 00084	+ 8
7	257	4	**7**	92	8
8	53	5	**8**	1 0	8
9	248	5	**9**	108	9
3 0	243	6	**8 0**	117	9
3 1	0 00237	− 6	**8 1**	0 00125	+ 9
2	231	7	**2**	134	9
3	224	8	**3**	143	9
4	216	8	**4**	152	9
5	209	8	**5**	161	9
3 6	0 00201	− 8	**8 6**	0 00170	+ 9
7	193	9	**7**	179	9
8	184	9	**8**	187	9
9	176	9	**9**	196	9
4 0	167	9	**9 0**	204	8
4 1	0 00158	− 9	**9 1**	0 00 12	+ 8
2	149	9	**2**	19	7
3	14	9	**3**	226	7
4	131	9	**4**	233	7
5	12	9	**5**	239	6
4 6	0 00114	− 9	**9 6**	0 00245	+ 6
7	105	9	**7**	250	5
8	97	8	**8**	254	4
9	89	8	**9**	258	4
5 0	0 00082	− 7	**10 0**	0 00262	+ 4

Appli d C ta t + ∞ 5

Tables of Longitude, Latitude, and Radius Vector

XIX — Equation of Longitude — Argument H

1	2	3	1	2	3	1	2	3	1	2	3
H	Equation	Δ $0^d·1$	H	Equation	Δ $0^d·1$	H	Equation	Δ $0^d·1$	H	Equation	Δ $0^d·1$
d	°		d	°		d	°		d	°	
0·0	0·00700	+ 24	5·0	0·01307	− 7	10·0	0·00344	− 20	15·0	0·00301	+ 19
·1	724	24	·1	1300	8	·1	325	19	·1	320	19
·2	747	24	·2	1292	9	·2	306	19	·2	339	20
·3	771	24	·3	1283	10	·3	288	18	·3	359	20
·4	795	23	·4	1273	11	·4	270	18	·4	379	21
·5	818	23	·5	1262	11	·5	253	17	·5	400	21
0·6	0·00841	+ 23	5·6	0·01251	− 12	10·6	0·00236	− 17	15·6	0·00421	+ 21
·7	864	23	·7	1238	13	·7	220	16	·7	442	22
·8	887	23	·8	1225	14	·8	205	15	·8	464	22
·9	910	22	·9	1211	14	·9	191	14	·9	486	23
1·0	932	22	6·0	1197	15	11·0	177	13	16·0	509	23
1·1	0·00954	+ 21	6·1	0·01182	− 15	11·1	0·00164	− 13	16·1	0·00532	+ 23
·2	975	21	·2	1167	16	·2	151	12	·2	555	23
·3	996	21	·3	1150	17	·3	140	11	·3	578	23
·4	1017	20	·4	1133	18	·4	129	10	·4	601	24
·5	1037	20	·5	1115	18	·5	119	9	·5	625	24
1·6	0·01057	+ 20	6·6	0·01097	− 19	11·6	0·00110	− 8	16·6	0·00649	+ 24
·7	1077	19	·7	1078	19	·7	102	8	·7	673	24
·8	1096	19	·8	1059	20	·8	94	7	·8	696	24
·9	1114	18	·9	1039	20	·9	88	6	·9	720	24
2·0	1132	18	7·0	1019	21	12·0	82	6	17·0	743	23
2·1	0·01149	+ 17	7·1	0·00998	− 21	12·1	0·00077	− 5	17·1	0·00767	+ 24
·2	1165	16	·2	977	21	·2	73	4	·2	791	23
·3	1181	15	·3	956	22	·3	70	3	·3	814	23
·4	1196	14	·4	934	22	·4	67	2	·4	837	23
·5	1210	14	·5	912	23	·5	65	− 1	·5	860	23
2·6	0·01224	+ 13	7·6	0·00889	− 23	12·6	0·00065	0	17·6	0·00883	+ 23
·7	1237	13	·7	866	23	·7	66	+ 1	·7	906	22
·8	1250	12	·8	843	23	·8	67	2	·8	928	22
·9	1261	11	·9	820	23	·9	69	3	·9	950	22
3·0	1272	10	8·0	797	23	13·0	72	4	18·0	972	21
3·1	0·01282	+ 9	8·1	0·00774	− 24	13·1	0·00076	+ 4	18·1	0·00993	+ 21
·2	1291	9	·2	750	24	·2	80	5	·2	1014	21
·3	1299	8	·3	726	24	·3	86	6	·3	1034	20
·4	1307	7	·4	702	24	·4	92	7	·4	1054	20
·5	1313	6	·5	679	24	·5	100	8	·5	1073	19
3·6	0·01319	+ 5	8·6	0·00655	− 24	13·6	0·00108	+ 9	18·6	0·01092	+ 19
·7	1324	4	·7	631	24	·7	117	9	·7	1110	18
·8	1328	3	·8	607	23	·8	126	10	·8	1128	17
·9	1331	2	·9	584	23	·9	137	11	·9	1145	17
4·0	1333	1	9·0	561	23	14·0	148	12	19·0	1162	17
4·1	0·01334	+ 1	9·1	0·00538	− 23	14·1	0·00160	+ 13	19·1	0·01178	+ 16
·2	1335	0	·2	515	23	·2	173	14	·2	1194	15
·3	1334	− 1	·3	492	22	·3	187	14	·3	1208	14
·4	1333	2	·4	470	22	·4	201	15	·4	1222	14
·5	1331	3	·5	448	21	·5	216	16	·5	1235	13
4·6	0·01328	− 4	9·6	0·00427	− 21	14·6	0·00232	+ 16	19·6	0·01247	+ 12
·7	1324	5	·7	406	21	·7	248	17	·7	1259	11
·8	1319	6	·8	385	21	·8	265	18	·8	1270	10
·9	1313	6	·9	364	20	·9	283	18	·9	1280	10
5·0	0·01307	− 7	10·0	0·00344	− 20	15·0	0·00301	+ 19	20·0	0·01289	+ 9

Applied Constant: +0°·00700.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

XX Equation of Longitude Argument α

		3			3			3			3			3
	Equ t n	Δ	α	Equat on	Δ o	α	Equ tıon	Δ 10	α	Equ tıon	Δ 0d	α	Equation	Δ 10d
d			d						d					
0	0 03500	−50	**1000**	0 0279	−	**2000**	0 0 786	+42	**3000**	0 0643	+19	**4000**	0 05087	−44
20	34 0	50	**1020**	276	− 1	**2020**	2871	43	**3020**	6468	18	**4020**	4999	44
40	3 99	50	**1040**	75	0	**2040**	957	43	**3040**	6503	17	**4040**	4910	45
60	3199	5	**1060**	77	+	**2060**	3 43	43	**3060**	6534	15	**4060**	4820	45
80	31 1	50	**1080**	8	3	**2080**	31 8	43	**3080**	6564	15	**4080**	4730	46
100	3 1	50	**1100**	9	5	**2100**	3 15	43	**3100**	659	13	**4100**	4637	47
120	0 02903	−49	**1120**	0 00301	+ 6	**2120**	0 033 1	+43	**3120**	0 06617	+12	**4120**	0 04543	−47
140	805	49	**1140**	314	7	**2140**	3387	43	**3140**	6639	11	**4140**	4449	48
160	7 8	48	**1160**	330	9	**2160**	3473	43	**3160**	6659	9	**4160**	4353	48
180	612	48	**1180**	349	10	**2180**	3559	43	**3180**	6676	8	**4180**	4256	49
200	517	48	**1200**	369	11	**2200**	3646	43	**3200**	6691	7	**4200**	4159	49
220	0 024 2	−47	**1220**	0 00392	+1	**2220**	0 03732	+43	**3220**	0 0670	+ 5	**4220**	0 04061	−50
240	23 9	46	**1240**	418	14	**2240**	3819	43	**3240**	671	4	**4240**	3961	50
260	2 37	46	**1260**	446	15	**2260**	3904	43	**3260**	6719	3	**4260**	3863	50
280	145	46	**1280**	477	16	**2280**	3990	43	**3280**	6723	+	**4280**	3763	50
300	2055	45	**1300**	510	17	**2300**	4076	43	**3300**	67 5	0	**4300**	3663	50
320	0 1967	−44	**1320**	00545	+18	**2320**	0 04161	+43	**3320**	0 06724	− 1	**4320**	0 03563	−50
340	1880	43	**1340**	582	20	**2340**	4246	42	**3340**	6720	3	**4340**	3462	50
360	1796	42	**1360**	6 3	1	**2360**	4330	4	**3360**	6712	5	**4360**	336	50
380	1713	41	**1380**	665		**2380**	4413	42	**3380**	670	6	**4380**	3262	50
400	1631	40	**1400**	710	23	**2400**	4496	42	**3400**	6689	7	**4400**	3163	50
420	0 0 55	−39	**1420**	0 00756	+ 4	**2420**	0 04579	+41	**3420**	0 06673	− 9	**4420**	0 03063	−50
440	1474	38	**1440**	805	25	**2440**	4660	41	**3440**	6655	10	**4440**	2965	49
460	1398	38	**1460**	854	25	**2460**	4741	40	**3460**	6634	11	**4460**	2867	49
480	13 4	37	**1480**	906	27	**2480**	4821	40	**3480**	6610	13	**4480**	769	49
500	1 52	36	**1500**	96	8	**2500**	490	40	**3500**	6583	14	**4500**	2673	48
520	0 01182	−34	**1520**	0 01019	+29	**2520**	0 04979	+39	**3520**	0 06554	−15	**4520**	0 0 576	−48
540	1115	33	**1540**	1077	30	**2540**	5057	39	**3540**	6522	17	**4540**	2481	47
560	1 5	3	**1560**	1137	3	**2560**	5133	38	**3560**	6486	18	**4560**	387	47
580	988	31	**1580**	1198	31	**2580**	5208	37	**3580**	6449	20	**4580**	2294	46
600	928	30	**1600**	1 6	3	**2600**	5 8	37	**3600**	6408	21	**4600**	2202	46
620	0 0 87	−28	**1620**	0 013 6	+33	**2620**	0 05355	+36	**3620**	0 06364	−23	**4620**	0 02111	−45
640	815	7	**1640**	1393	34	**2640**	5426	35	**3640**	6318	24	**4640**	2023	44
660	76	6	**1660**	1460	34	**2660**	5496	35	**3660**	6270	5	**4660**	1935	44
680	71	25	**1680**	15 9	35	**2680**	5566	34	**3680**	6 19	6	**4680**	1849	43
700	664	24	**1700**	1600	36	**2700**	563	33	**3700**	6165	27	**4700**	1764	42
720	0 00619	−	**1720**	0 01671	+36	**2720**	0 05698	+33	**3720**	0 06108	− 9	**4720**	0 01681	−41
740	577	0	**1740**	1745	37	**2740**	5763	32	**3740**	6050	30	**4740**	1601	40
760	538	19	**1760**	1819	38	**2760**	5826	31	**3760**	5989	31	**4760**	1521	39
780	501	18	**1780**	1895	38	**2780**	5887	30	**3780**	59 6	32	**4780**	1444	38
800	465	17	**1800**	197	39	**2800**	5945	29	**3800**	5860	34	**4800**	1370	37
820	0 00435	−15	**1820**	0 02 49	+39	**2820**	0 06003	+29	**3820**	0 05791	−35	**4820**	0 01297	−36
840	407	14	**1840**	21 8	40	**2840**	6 59	27	**3840**	5722	35	**4840**	1226	35
860	381	1	**1860**	2 08	4	**2860**	6112	6	**3860**	5650	37	**4860**	1157	34
880	359	11	**1880**	88	41	**2880**	6163	26	**3880**	5575	38	**4880**	1090	33
900	338	1	**1900**	2370	41	**2900**	6214	5	**3900**	5498	39	**4900**	1027	31
920	0 003 1	− 8	**1920**	0 02452	+41	**2920**	0 06262	+23	**3920**	0 05420	−4	**4920**	0 00966	−3
940	306	7	**1940**	2535	4	**2940**	6307	22	**3940**	5339	41	**4940**	906	29
960	94	5	**1960**	618	4	**2960**	6351	21	**3960**	5256	42	**4960**	849	8
980	85	4	**1980**	270	42	**2980**	6392	0	**3980**	5173	42	**4980**	795	27
1000	0 00279	−	**2000**	0 02786	+4	**3000**	0 06432	+19	**4000**	0 05087	−44	**5000**	0 00743	−25

Appli d C t t + 3500

Tables of Longitude, Latitude, and Radius Vector

XXI — Equation of Longitude — Argument I

1	2	3	1	2	3	1	2	3
I	Equation	Δ	I	Equation	Δ	I	Equation	Δ
y	°		y	°		y	°	
1850·0	0·00532	− 1	1900·0	0·00567	+ 2	1950·0	0·00641	− 7
1·0	531	− 1	1·0	569	2	1·0	635	6
2·0	530	+ 1	2·0	570	2	2·0	629	7
3·0	532	2	3·0	572	2	3·0	622	7
4·0	534	2	4·0	574	3	4·0	615	7
5·0	536	2	5·0	578	4	5·0	608	7
1856·0	0·00538	+ 2	1906·0	0·00581	+ 3	1956·0	0·00602	− 7
7·0	539	2	7·0	584	4	7·0	595	7
8·0	541	2	8·0	588	4	8·0	589	7
9·0	543	3	9·0	592	4	9·0	582	6
1860·0	546	3	1910·0	596	5	1960·0	577	6
1861·0	0·00549	+ 3	1911·0	0·00601	+ 5	1961·0	0·00570	− 6
2·0	551	2	2·0	606	5	2·0	565	5
3·0	553	3	3·0	610	5	3·0	560	5
4·0	556	3	4·0	616	7	4·0	555	5
5·0	559	3	5·0	623	6	5·0	550	5
1866·0	0·00562	+ 3	1916·0	0·00628	+ 6	1966·0	0·00545	− 4
7·0	564	2	7·0	635	6	7·0	542	4
8·0	566	2	8·0	640	5	8·0	538	3
9·0	568	2	9·0	645	5	9·0	536	3
1870·0	570	2	1920·0	650	5	1970·0	532	3
1871·0	0·00572	+ 2	1921·0	0·00656	+ 6	1971·0	0·00530	− 3
2·0	574	2	2·0	662	6	2·0	527	2
3·0	576	2	3·0	667	4	3·0	526	1
4·0	577	+ 1	4·0	670	4	4·0	526	1
5·0	577	0	5·0	675	5	5·0	524	1
1876·0	0·00577	− 1	1926·0	0·00680	+ 5	1976·0	0·00524	− 2
7·0	576	0	7·0	684	4	7·0	521	3
8·0	577	+ 1	8·0	688	4	8·0	519	− 1
9·0	577	0	9·0	691	3	9·0	519	0
1880·0	577	− 1	1930·0	694	3	1980·0	519	+ 1
1881·0	0·00576	− 1	1931·0	0·00697	+ 2	1981·0	0·00520	0
2·0	576	1	2·0	698	1	2·0	519	− 1
3·0	575	2	3·0	699	+ 1	3·0	518	0
4·0	573	1	4·0	699	0	4·0	519	+ 1
5·0	573	1	5·0	699	− 1	5·0	520	+ 1
1886·0	0·00572	− 1	1936·0	0·00698	− 1	1986·0	0·00520	− 1
7·0	571	1	7·0	697	1	7·0	519	1
8·0	571	1	8·0	696	2	8·0	518	1
9·0	570	2	9·0	694	3	9·0	518	1
1890·0	568	2	1940·0	691	3	1990·0	517	1
1891·0	0·00567	− 1	1941·0	0·00688	− 4	1991·0	0·00517	− 1
2·0	566	1	2·0	684	5	2·0	516	1
3·0	565	− 1	3·0	679	5	3·0	515	1
4·0	564	0	4·0	675	4	4·0	514	1
5·0	565	+ 1	5·0	672	4	5·0	512	2
1896·0	0·00565	− 1	1946·0	0·00667	− 6	1996·0	0·00510	− 3
7·0	564	+ 1	7·0	660	7	7·0	507	3
8·0	566	1	8·0	654	6	8·0	505	3
9·0	566	1	9·0	648	7	9·0	502	4
1900·0	0·00567	+ 2	1950·0	0·00641	− 7	2000·0	0·00498	− 4

Applied Constant: +0°·00700.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

XXII Equation of Longitude Argument J

		3			3			3			3
J	Equation	Δ 0d 0	J	Equation	Δ 0 0	J	E1 ation	Δ 0 01	J	Equ tion	Δ 0 01
0 00	o 3300	− 23 5	2 50	0 00333	+ 7	5 00	0 05120	+ 19 1	d 7 50	0515	− 19 0
05	3182	3 5	55	371	8	05	5214	18 5	55	5 56	19 5
10	3 65	3 4	60	413	8 8	10	53 5	18 0	60	4957	19 9
15	948	3	65	459	9 6	15	5394	17 4	65	4857	20 3
20	833	3	70	5 9	4	20	5479	16 8	70	4754	20 7
25	716	3	75	563	11 3	25	5562	16	75	4650	1 1
0 30	601	− 8	2 80	0 0 6	+ 1 1	5 30	0 05641	+ 15 4	7 80	0 04543	− 21 6
35	2488	2 6	85	684	1 8	35	5716	14 8	85	4434	21 9
40	2375	6	90	75	13 4	40	5789	14	90	4324	2 1
45	6		95	818	14 1	45	5858	13 4	95	4 13	2 4
50	153	1 7	3 00	891	15	50	5923	1 7	8 00	4100	22 7
0 55	02045	− 21 4	3 05	0968	+ 15 6	5 55	0 05985	+ 12 0	8 05	0 03986	− 22 9
60	1939	1 1	10	1047	16 2	60	6043	11	10	3871	23 1
65	1834	0 7	15	113	16 9	65	6097	10 4	15	3755	3 3
70	1732	3	20	1 16	17 5	70	6147	9 6	20	3638	23 4
75	1631	19 9	25	13 5	18 0	75	6193	8 8	25	35 1	3 3
0 80	0 01533	− 19 3	3 30	01396	+ 18 5	5 80	0 06235	+ 7 9	8 30	0 034 5	− 3 4
85	1438	18 8	35	1490	19 1	85	627	7 1	35	3287	23 5
90	1345	18 3	40	1587	19 6	90	6306	6 3	40	3170	23 5
95	1 55	17 7	45	1686	0 1	95	6335	5 4	45	3052	23 5
1 00	1168	17 1	50	1788	20 5	6 00	6360	4 5	50	2935	23 3
1 05	0 01084	− 16 5	3 55	0 01891	+ 0 9	6 05	0 06380	+ 3 5	8 55	0 02819	− 23 2
10	1003	15 9	60	1997	1 3	10	6395	7	60	703	23 0
15	9 5	15 3	65	21 4	21 7	15	6407	0	65	589	22 8
20	850	14 6	70	2214	2 1	20	6415	1 1	70	2475	22 7
25	779	13 8	75	23 5	3	25	6418	+ 0 2	75	2362	2 4
1 30	0 0 71	− 13 1	3 80	0 02437	+ 22 5	6 30	06417	− 0 7	8 80	0 02251	− 22 1
35	648	1 3	85	255	2 8	35	6411	1 6	85	2141	1 8
40	589	11 6	90	665	3 0	40	64 1	2 5	90	2033	1 4
45	53	10 9	95	780	3	45	6386	3 4	95	1927	21 0
50	480	9 9	4 00	2897	3 4	50	6367	4	9 00	1823	20 7
1 55	0 0 433	− 9 1	4 05	0 03014	+ 23 3	6 55	0 06344	− 5 1	9 05	0 01720	− 20 3
60	389	8 4	10	3130	23 4	60	6316	6 1	10	16 0	19 7
65	349	7 6	15	3 48	3 6	65	6 83	6 9	15	1523	19 2
70	313	6 8	20	3366	3 5	70	6247	7 6	20	14 8	18 8
75	81	5 9	25	3483	3 4	75	6 07	8 4	25	1335	18 3
1 80	0 00 54	− 5 0	4 30	0 3600	+ 23 2	6 80	0 06163	− 9 3	9 30	0 01245	− 17 7
85	31	4 1	35	3716	3	85	6114	10 2	35	1158	17 0
90	13	3 1	40	3832	3	90	6061	1 9	40	1075	16 3
95	200	2 5	45	3948	23 0	95	6005	11 7	45	995	15 8
2 00	188	1 7	50	4 6	2 8	7 00	5944	12 5	50	917	15 3
2 05	0 00183	− 0 6	4 55	0 04176	+ 22 5	7 05	0 05880	− 13	9 55	0 0 842	− 14 6
10	18	+ 0	60	4287	22 2	10	5812	13 8	60	771	13 8
15	185	1	65	4398	22 0	15	5742	14 5	65	704	13 0
20	193	2 1	70	4507	21 7	20	5667	15 4	70	641	12 3
25	6	9	75	4615	21 3	25	5588	16 0	75	581	11 5
2 30	0 0 222	+ 3 7	4 80	0 04720	+ 20 9	7 30	0 05507	− 16 5	9 80	0 0 526	− 10 7
35	243	4 7	85	48 4	2 5	35	5423	17 1	85	474	9 9
40	269	5 6	90	49 5	19 9	40	5336	17 7	90	4 7	9 0
45	99	6 4	95	5023	19 5	45	5246	18 4	95	384	8
2 50	0 00333	+ 7	5 00	0 05120	+ 19 1	7 50	0 05152	− 19 0	10 00	0 00345	− 7 5

Appli d C t t + 3

Tables of Longitude, Latitude, and Radius Vector

XXII *continued* — **Equation of Longitude** — **Argument J**

1	2	3	1	2	3	1	2	3	1	2	3
J	Equation	Δ 0ᵈ·01	**J**	Equation	Δ 0ᵈ·01	**J**	Equation	Δ 0ᵈ·01	**J**	Equation	Δ 0ᵈ·01
d	°		d	°		d	°		d	°	
10·00	0·00345	− 7,5	**12·50**	0·03261	+ 23,6	**15·00**	0·06280	− 7,0	**17·50**	0·01511	− 19,1
·05	309	6,7	**·55**	3379	23,5	**·05**	6243	7,7	**·55**	1417	18,6
·10	278	5,8	**·60**	3496	23,5	**·10**	6203	8,5	**·60**	1325	18,2
·15	251	4,9	**·65**	3614	23,4	**·15**	6158	9,4	**·65**	1235	17,5
·20	229	4,0	**·70**	3730	23,2	**·20**	6109	10,2	**·70**	1150	16,7
·25	211	3,3	**·75**	3846	23,0	**·25**	6056	11,1	**·75**	1068	16,3
10·30	0·00196	− 2,4	**12·80**	0·03960	+ 22,8	**15·30**	0·05998	− 11,8	**17·80**	0·00987	− 15,9
·35	187	1,4	**·85**	4074	22,8	**·35**	5938	12,5	**·85**	909	15,3
·40	182	− 0,5	**·90**	4188	22,6	**·40**	5873	13,2	**·90**	834	14,6
·45	182	+ 0,4	**·95**	4300	22,2	**·45**	5806	13,9	**·95**	763	13,6
·50	186	1,3	**13·00**	4410	21,9	**·50**	5734	14,7	**18·00**	698	12,8
10·55	0·00195	+ 2,1	**13·05**	0·04519	+ 21,6	**15·55**	0·05659	− 15,4	**18·05**	0·00635	− 12,1
·60	207	2,9	**·10**	4626	21,2	**·60**	5580	16,1	**·10**	577	11,5
·65	224	4,0	**·15**	4731	20,8	**·65**	5498	16,6	**·15**	520	10,9
·70	247	4,9	**·20**	4834	20,5	**·70**	5414	17,1	**·20**	468	9,9
75	273	5,7	**·25**	4936	20,0	**·75**	5327	17,9	**·25**	421	8,9
10·80	0·00304	+ 6,5	**13·30**	0·05034	+ 19,5	**15·80**	0·05235	− 18,5	**18·30**	0·00379	− 8,0
·85	338	7,1	**·35**	5131	19,0	**·85**	5142	18,9	**·35**	341	7,3
·90	375	8,0	**·40**	5224	18,4	**·90**	5046	19,4	**·40**	306	6,5
·95	418	8,9	**·45**	5315	18,0	**·95**	4948	20,0	**·45**	276	5,8
11 00	464	9,6	**·50**	5404	17,4	**16·00**	4846	20,4	**·50**	248	5,0
11·05	0·00514	+ 10,5	**13·55**	0·05489	+ 16,7	**16·05**	0·04744	− 20,7	**18·55**	0·00226	− 4,1
·10	569	11,3	**·60**	5571	16,0	**·10**	4639	21,2	**·60**	209	3,0
·15	627	12,2	**·65**	5649	15,3	**·15**	4532	21,7	**·65**	196	2,2
·20	691	12,9	**·70**	5724	14,7	**·20**	4422	22,0	**·70**	187	1,4
·25	756	13,4	**·75**	5796	14,0	**·25**	4312	22,2	**·75**	182	− 0,5
11·30	0·00825	+ 14,3	**13·80**	0·05864	+ 13,4	**16·30**	0·04200	− 22,5	**18·80**	0·00182	+ 0,4
·35	899	15,1	**·85**	5930	12,7	**·35**	4087	22,7	**·85**	186	1,3
·40	976	15,6	**·90**	5991	11,9	**·40**	3973	22,8	**·90**	195	2,3
·45	1055	16,3	**·95**	6049	11,1	**·45**	3859	23,0	**·95**	209	3,1
·50	1139	17,0	**14·00**	6102	10,3	**·50**	3743	23,4	**19·00**	226	4,0
11·55	0·01225	+ 17,6	**14·05**	0·06152	+ 9,5	**16·55**	0·03625	− 23,5	**19·05**	0·00249	+ 4,9
·60	1315	18,1	**·10**	6197	8,7	**·60**	3508	23,4	**·10**	275	5,7
·65	1406	18,5	**·15**	6239	7,9	**·65**	3391	23,5	**·15**	306	6,4
·70	1500	19,1	**·20**	6276	7,0	**·70**	3273	23,6	**·20**	339	7,3
·75	1597	19,7	**·25**	6309	6,2	**·75**	3155	23,4	**·25**	379	8,4
11·80	0·01697	+ 20,2	**14·30**	0·06338	+ 5,3	**16·80**	0·03039	− 23,3	**19·30**	0·00423	+ 9,0
·85	1799	20,6	**·35**	6362	4,4	**·85**	2922	23,3	**·35**	469	9,6
·90	1903	20,9	**·40**	6382	3,5	**·90**	2806	23,1	**·40**	519	10,5
·95	2008	21,3	**·45**	6397	2,6	**·95**	2691	22,9	**·45**	574	11,5
12·00	2116	21,8	**·50**	6408	1,9	**17·00**	2577	22,8	**·50**	634	12,4
12·05	0·02226	+ 22,2	**14·55**	0·06416	+ 1,0	**17·05**	0·02463	− 22,7	**19·55**	0·00698	+ 13,0
·10	2338	22,4	**·60**	6418	+ 0,1	**·10**	2350	22,5	**·60**	764	13,7
·15	2450	22,5	**·65**	6417	− 0,8	**·15**	2238	22,1	**·65**	833	14,3
·20	2563	22,7	**·70**	6410	1,7	**·20**	2129	21,7	**·70**	907	15,2
·25	2677	22,9	**·75**	6400	2,6	**·25**	2021	21,3	**·75**	985	15,8
12·30	0·02792	+ 23,2	**14·80**	0·06384	− 3,5	**17·30**	0·01916	− 21,0	**19·80**	0·01065	+ 16,4
·35	2909	23,4	**·85**	6365	4,4	**·35**	1811	20,7	**·85**	1149	17,0
·40	3026	23,4	**·90**	6340	5,2	**·40**	1709	20,3	**·90**	1235	17,5
·45	3143	23,5	**·95**	6313	6,0	**·45**	1608	19,8	**·95**	1324	18,2
12·50	0·03261	+ 23,6	**15·00**	0·06280	− 7,0	**17·50**	0·01511	− 19,1	**20·00**	0·01417	+ 18,8

Applied Constant: +0°·03300.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

Equations of Longitude

XXIII

K	Equation	Δ (3)	K	Equation	Δ (3)
d			d		
00	0 007 0	− 48	50	1074	+ 39
1	65	48	1	111	37
2	6 3	48	2	1148	35
3	556	47	3	1181	3
4	509	46	4	1 1	9
5	464	45	5	1 39	6
06	0 04 0	− 44	56	0 01 64	+ 24
7	377	4	7	1 86	20
8	336	4	8	1304	16
9	98	37	9	1318	13
10	6	35	60	13 9	9
11	0 00 8	− 33	61	0 01336	+ 6
2	196	30	2	1340	+ 3
3	68	27	3	1341	− 1
4	14	4	4	1338	5
5	120	21	5	1331	9
16	0 00101	17	66	0 0132	− 13
7	86	14	7	1306	16
8	74	11	8	1 88	19
9	65	7	9	1 68	22
20	6	− 3	70	1 44	6
21	0 00059	+ 1	71	0 01217	− 29
2	6	5	2	1186	3
3	68	8	3	1153	34
4	77	11	4	1118	36
5	90	15	5	1 81	39
26	0 00106	+ 18	76	0 01041	− 41
7	126		7	999	43
8	149	5	8	956	44
9	175	28	9	911	46
30	05	31	80	864	47
31	00 37	+ 33	81	0 00817	− 47
2	71	36	2	770	48
3	308	39	3	7 2	49
4	348	41	4	673	49
5	389	4	5	6 5	48
36	0 00432	+ 44	86	0 00577	− 48
7	476	45	7	530	47
8	522	47	8	484	46
9	569	48	9	439	44
40	6 7	48	90	396	43
41	00665	+ 48	91	0 00355	41
2	713	49	2	315	39
3	76	49	3	77	37
4	810	48	4	4	34
5	857	47	5	210	31
46	0 00903	+ 46	96	0 00180	− 9
7	948	45	7	153	6
8	99	43	8	129	2
9	1 34	41	9	109	19
50	0 01074	+ 39	100	0 009	− 15

Appl d C t t + 00 00

XXIV

L	Equation	Δ 0d (3)
00	00100	+ 5
2	110	5
4	1 0	5
6	13	5
8	139	4
10	147	4
12	00 154	+ 3
4	160	3
6	164	
8	167	+ 1
20	168	
22	0 00168	− 1
4	166	1
6	163	
8	159	3
30	53	3
32	0 00146	− 4
4	138	5
6	128	5
8	119	5
40	1 9	5
42	0 00098	− 5
4	88	5
6	78	5
8	69	5
50	60	4
52	0 0005	− 4
4	45	3
6	39	3
8	35	2
60	33	− 1
62	0 0003	0
4	32	+ 1
6	34	1
8	37	
70	4	3
72	0 00048	+ 3
4	55	4
6	64	5
8	73	5
80	83	5
82	0 00093	+ 5
4	103	5
6	113	5
8	1 3	5
90	133	5
92	0 00141	+ 4
4	149	4
6	156	3
8	161	2
100	0 00165	+ 2

C ta + 00 00

XXV

M	Equation	Δ 0d 1 (3)	M	Equation	Δ 0d 1 (3)
00	0 00050	3	100	0 00022	1
2	45	2	2	0	− 1
4	41		4	2	0
6	37		6	0	0
8	33		8	21	+ 1
10	29		110	3	1
12	0 00 6	− 1	112	0 000 5	+ 1
4	4	1	4	28	2
6	2	1	6	31	2
8	1	− 1	8	35	
20	20	0	120	39	2
22	0 0 0 0	0	122	00043	+ 2
4	21	+ 1	4	47	2
6	2	1	6	51	2
8	4	1	8	56	3
30	27	2	130	61	
32	0 00030	+ 2	132	0 00065	+ 2
4	33	2	4	69	
6	37		6	72	
8	4		8	75	1
40	46	2	140	77	1
42	0 00051	+ 2	142	0 00079	+ 1
4	55		4	8	0
6	60	2	6	80	0
8	64	2	8	80	0
50	68		150	79	− 1
52	0 00 71	+ 2	152	0 00077	− 1
4	74	1	4	75	1
6	76	1	6	72	2
8	78	1	8	69	2
60	79	+ 1	160	65	2
62	0 00080	0	162	0 00061	− 2
4	80	0	4	56	
6	79	− 1	6	52	2
8	77	1	8	47	2
70	75	1	170	43	2
72	0 00073	− 1	172	0 00039	−
4	70	2	4	35	
6	66		6	31	2
8	6	2	8	28	2
80	58		180	25	1
82	00 53	−	182	0 00023	− 1
4	49		4	21	− 1
6	44	2	6	20	0
8	40	2	8	0	
90	36	2	190	0	0
92	0 0003		192	0 00021	+ 1
4	29		4	23	1
6	6	1	6	6	2
8	4	1	8	29	2
100	0 0002	− 1	200	0 00032	

Appl d Co tant + 0005

Tables of Longitude, Latitude, and Radius Vector

XXVI Equation of Variation of the Radius Vector, Doubled. Argument E

1	2	3	1	2	3	1	2	3	1	2	3
E	Equation	Δ	E	Equation	Δ	E	Equation	Δ	E	Equation	Δ
d			d			d			d		
0·0	− 0·01580	+ 0	5·0	+ 0·00355	+ 53	10·0	+ 0·01096	− 32	15·0	− 0·01287	− 34
·1	1579	2	·1	407	52	·1	1063	34	·1	1320	32
·2	1576	5	·2	459	51	·2	1029	35	·2	1351	30
·3	1570	7	·3	509	50	·3	993	37	·3	1380	28
·4	1563	8	·4	559	50	·4	956	39	·4	1407	26
·5	1554	11	·5	608	49	·5	917	40	·5	1432	24
0·6	− 0·01542	+ 13	5·6	+ 0·00657	+ 48	10·6	+ 0·00876	− 41	15·6	− 0·01455	− 23
·7	1528	15	·7	704	47	·7	835	43	·7	1477	21
·8	1512	17	·8	750	45	·8	791	45	·8	1497	19
·9	1495	18	·9	794	44	·9	746	45	·9	1514	16
1·0	1476	21	6·0	837	43	11·0	701	46	16·0	1529	14
1·1	− 0·01454	+ 23	6·1	+ 0·00879	+ 41	11·1	+ 0·00654	− 48	16·1	− 0·01542	− 13
·2	1430	24	·2	919	40	·2	605	49	·2	1554	11
·3	1405	27	·3	958	38	·3	556	50	·3	1564	9
·4	1377	29	·4	995	37	·4	506	51	·4	1571	6
·5	1348	30	·5	1031	36	·5	455	51	·5	1576	4
1·6	− 0·01317	+ 32	6·6	+ 0·01066	+ 34	11·6	+ 0·00404	− 52	16·6	− 0·01579	− 2
·7	1284	34	·7	1098	32	·7	351	53	·7	1580	0
·8	1250	35	·8	1129	31	·8	298	53	·8	1579	+ 2
·9	1214	37	·9	1159	29	·9	245	53	·9	1576	4
2·0	1176	39	7·0	1187	27	12·0	192	54	17·0	1571	6
2·1	− 0·01137	+ 40	7·1	+ 0·01213	+ 25	12·1	+ 0·00137	− 55	17·1	− 0·01564	+ 9
·2	1097	41	·2	1237	23	·2	82	55	·2	1554	12
·3	1055	43	·3	1259	22	·3	+ 27	56	·3	1541	14
·4	1012	44	·4	1280	19	·4	− 29	56	·4	1526	16
·5	968	45	·5	1297	17	·5	85	56	·5	1510	17
2·6	− 0·00922	+ 47	7·6	+ 0·01313	+ 16	12·6	− 0·00141	− 56	17·6	− 0·01492	+ 19
·7	875	48	·7	1328	14	·7	196	55	·7	1472	21
·8	826	49	·8	1340	11	·8	251	55	·8	1450	23
·9	777	50	·9	1350	9	·9	306	55	·9	1426	25
3·0	727	51	8·0	1357	7	13·0	361	55	18·0	1401	26
3·1	− 0·00676	+ 52	8·1	+ 0·01363	+ 5	13·1	− 0·00416	− 55	18·1	− 0·01374	+ 28
·2	624	52	·2	1367	3	·2	470	54	·2	1345	30
·3	572	53	·3	1369	+ 1	·3	523	53	·3	1314	32
·4	519	54	·4	1370	− 1	·4	576	53	·4	1282	34
·5	465	54	·5	1368	3	·5	628	52	·5	1247	36
3·6	− 0·00411	+ 54	8·6	+ 0·01364	− 5	13·6	− 0·00680	− 51	18·6	− 0·01211	+ 37
·7	357	55	·7	1358	7	·7	730	50	·7	1174	38
·8	302	55	·8	1350	9	·8	780	50	·8	1135	40
·9	247	55	·9	1340	12	·9	830	49	·9	1094	42
4·0	192	56	9·0	1327	14	14·0	878	48	19·0	1051	43
4·1	− 0·00136	+ 56	9·1	+ 0·01312	− 16	14·1	− 0·00925	− 46	19·1	− 0·01008	+ 44
·2	80	56	·2	1295	18	·2	970	45	·2	963	45
·3	− 25	55	·3	1276	19	·3	1015	44	·3	918	46
·4	+ 30	55	·4	1256	21	·4	1058	42	·4	871	48
·5	85	55	·5	1234	23	·5	1099	41	·5	822	50
4·6	+ 0·00140	+ 55	9·6	+ 0·01210	− 25	14·6	− 0·01140	− 40	19·6	− 0·00772	+ 50
·7	195	54	·7	1184	27	·7	1179	39	·7	722	51
·8	248	54	·8	1156	29	·8	1217	37	·8	671	52
·9	302	54	·9	1127	30	·9	1253	35	·9	619	52
5·0	+ 0·00355	+ 53	10·0	+ 0·01096	− 32	15·0	− 0·01287	− 34	20·0	− 0·00567	+ 52

Applied Constant: − ·00100. The Equation of this Table must be supplemented by those of Tables XXVII–XXIX.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

Equations of the Variation of Radius Vector, Doubled

XXVII

C	Equation	C	Equation
d			
0 0	0 00 64	10 0	0 00043
2	64	2	45
4	63	4	48
6	62	6	5
8	61	8	5
1 0	6	11 0	55
1 2	0 00 58	11 2	0 00057
4	56	4	59
6	54	6	60
8	52	8	62
2 0	49	12 0	63
2 2	0 00047	12 2	0 00064
4	44	4	64
6	4	6	64
8	39	8	64
3 0	37	13 0	63
3 2	0 00035	13 2	0 00062
4	33	4	61
6	3	6	59
8	30	8	57
4 0	29	14 0	55
4 2	0 000 8	14 2	0 00053
4	27	4	51
6	26	6	48
8	5	8	46
5 0	25	15 0	43
5 2	0 00025	15 2	0 00041
4	4	4	39
6	24	6	37
8	24	8	35
6 0	4	16 0	33
6 2	0 000 4	16 2	0 00031
4	24	4	30
6	4	6	8
8	24	8	27
7 0	24	17 0	27
7 2	0 00024	17 2	0 00026
4	5	4	25
6	25	6	25
8	26	8	25
8 0	6	18 0	24
8 2	0 00 27	18 2	0 000 4
4	28	4	24
6	29	6	4
8	31	8	4
9 0	3	19 0	4
9 2	0 00034	19 2	0 00024
4	36	4	24
6	38	6	4
8	40	8	25
10 0	0 00043	20 0	0 00 25

C t t + 000

XXVIII

D	Equation	3 Δ 0 1
0 0	0 00076	− 0 0
0 4	76	0 3
0 8	74	0 5
1 2	7	0 5
1 6	70	0 8
2 0	66	0 8
2 4	0 00062	− 1 0
2 8	58	1 1
3 2	53	1 3
3 6	48	1 4
4 0	42	1 4
4 4	0 00037	− 1 3
4 8	3	1 3
5 2	27	1 3
5 6	22	1 3
6 0	17	1 1
6 4	0 00013	− 0 9
6 8	10	0 8
7 2	7	0 6
7 6	5	0 4
8 0	4	− 0 1
8 4	0 00004	+ 0 1
8 8	5	0 3
9 2	6	0 4
9 6	8	0 5
10 0	11	0 8
10 4	0 00014	+ 0 9
10 8	18	1 1
11 2	23	1 3
11 6	28	1 3
12 0	33	1 3
12 4	0 00038	+ 1 4
12 8	44	1 3
13 2	49	1 3
13 6	54	1 3
14 0	59	1 1
14 4	0 00063	+ 1 0
14 8	67	0 9
15 2	70	0 8
15 6	73	0 6
16 0	75	0 4
16 4	0 00076	+ 0 1
16 8	76	− 0 1
17 2	75	0 3
17 6	74	0 4
18 0	72	0 6
18 4	0 00069	− 0 9
18 8	65	1 0
19 2	61	1 0
19 6	57	1 1
20 0	0 00052	− 1 1

C ta t + 000

XXIX

H	Equation
d	
0	0 00009
1	10
2	1
3	15
4	19
5	23
6	0 00027
7	30
8	31
9	31
10	29
11	0 00026
12	23
13	18
14	14
15	11
16	0 00009
17	9
18	10
19	13
20	0 00016

C t t + 000

Th ig f tl Eq tl p iti

Tables of Longitude, Latitude, and Radius Vector

XXX Equation of Latitude Argument J

1	2	3	4
J	Equation	$\overset{\Delta}{0^{d}\cdot 01}$	$\frac{1}{2}\Delta^2$
d			
0·00	1·34000	+494,8	0,0
·04	1·35979	494,8	0,0
·08	1·37958	494,6	0,0
·12	1·39936	494,3	0,0
·16	1·41912	493,8	0,0
·20	1·43886	493,4	0,0
0·24	1·45859	+492,9	0,0
·28	1·47829	492,0	−0,1
·32	1·49795	491,1	0,1
·36	1·51758	490,3	0,1
·40	1·53717	489,1	0,1
0·44	1·55671	+488,0	−0,1
·48	1·57621	486,9	0,2
·52	1·59566	485,5	0,2
·56	1·61505	483,9	0,2
·60	1·63437	482,3	0,2
0·64	1·65363	+480,5	−0,2
·68	1·67281	478,6	0,2
·72	1·69192	476,8	0,2
·76	1·71095	474,8	0,3
·80	1·72990	472,6	0,3
0·84	1·74876	+470,4	−0,3
·88	1·76753	468,0	0,3
·92	1·78620	465,5	0,3
·96	1·80477	463,0	0,3
1·00	1·82324	460,4	0,3
1·04	1·84160	+457,5	−0,4
·08	1·85984	454,6	0,4
·12	1·87797	451,8	0,4
·16	1·89598	448,5	0,4
·20	1·91385	445,1	0,4
1·24	1·93159	+441,9	−0,4
·28	1·94920	438,6	0,4
·32	1·96668	435,4	0,4
·36	1·98403	431,9	0,5
·40	2·00123	428,1	0,5
1·44	2·01828	+424,1	−0,5
·48	2·03516	420,3	0,5
·52	2·05190	416,5	0,5
·56	2·06848	412,4	0,5
·60	2·08489	408,1	0,5
1·64	2·10113	+403,9	−0,5
·68	2·11720	399,4	0,6
·72	2·13308	394,9	0,6
·76	2·14879	390,5	0,6
·80	2·16432	386,0	0,6
1·84	2·17967	+381,3	−0,6
·88	2·19482	376,4	0,6
·92	2·20978	371,6	0,6
·96	2·22455	366,6	0,6
2·00	2·23911	+361,5	−0,6

1	2	3	4
J	Equation	$\overset{\Delta}{0^{d}\cdot 01}$	$\frac{1}{2}\Delta^2$
d			
2·00	2·23911	+361,5	−0,6
·04	2·25347	356,4	0,6
·08	2·26762	351,3	0,6
·12	2·28157	346,1	0,7
·16	2·29531	340,6	0,7
·20	2·30882	335,1	0,7
2·24	2·32212	+329,8	−0,7
·28	2·33520	324,1	0,7
·32	2·34805	318,3	0,7
·36	2·36066	312,5	0,7
·40	2·37305	306,9	0,7
2·44	2·38521	+301,0	−0,7
·48	2·39713	295,0	0,8
·52	2·40881	289,0	0,8
·56	2·42025	282,9	0,8
·60	2·43144	276,5	0,8
2·64	2·44237	+270,1	−0,8
·68	2·45305	263,9	0,8
·72	2·46348	257,8	0,8
·76	2·47367	251,6	0,8
·80	2·48361	245,0	0,8
2·84	2·49327	+238,4	−0,8
·88	2·50268	231,9	0,8
·92	2·51182	225,3	0,8
·96	2·52070	218,6	0,8
3·00	2·52931	211,9	0,9
3·04	2·53765	+205,0	−0,8
·08	2·54571	198,4	0,9
·12	2·55352	191,4	0,9
·16	2·56104	184,5	0,9
·20	2·56828	177,6	0,9
3·24	2·57525	+170,8	−0,9
·28	2·58194	163,6	0,9
·32	2·58834	156,5	0,9
·36	2·59446	149,3	0,9
·40	2·60028	142,1	0'9
3·44	2·60583	+135,3	−0,9
·48	2·61110	128,1	0,9
·52	2·61608	120,8	0,9
·56	2·62076	113,4	0,9
·60	2·62515	106,1	0,9
3·64	2·62925	+ 98,9	−0,9
·68	2·63306	91,5	0,9
·72	2·63657	84,0	0,9
·76	2·63978	76,6	0,9
·80	2·64270	69,4	0,9
3·84	2·64533	+ 62,0	−0,9
·88	2·64766	54,6	0,9
·92	2·64970	47,1	0,9
·96	2·65143	39,5	0,9
4·00	2·65286	+ 32,0	−0,9

1	2	3	4
J	Equation	$\overset{\Delta}{0^{d}\cdot 01}$	$\frac{1}{2}\Delta^2$
d			
4·00	2·65286	+ 32,0	−0,9
·04	2·65399	24,5	0,9
·08	2·65482	17,1	0,9
·12	2·65536	9,8	0,9
·16	2·65560	+ 2,3	0,9
·20	2·65554	− 5,3	0,9
4·24	2·65518	− 12,8	−0,9
·28	2·65452	20,1	0,9
·32	2·65357	27,5	0,9
·36	2·65232	35,0	0,9
·40	2·65077	42,5	0,9
4·44	2·64892	− 49,9	−0,9
·48	2·64678	57,4	0,9
·52	2·64433	64,9	0,9
·56	2·64159	72,3	0,9
·60	2·63855	79,6	0,9
4·64	2·63522	− 87,0	−0,9
·68	2·63159	94,4	0,9
·72	2·62767	101,5	0,9
·76	2·62347	108,8	0,9
·80	2·61897	116,1	0,9
4·84	2·61418	−123,5	−0,9
·88	2·60909	130,8	0,9
·92	2·60372	137,8	0,9
·96	2·59807	145,0	0,9
5·00	2·59212	152,1	0,9
5·04	2·58590	−159,3	−0,9
·08	2·57938	166,5	0,9
·12	2·57258	173,4	0,9
·16	2·56551	180,4	0,9
·20	2·55815	187,4	0,9
5·24	2·55052	−194,1	−0,8
·28	2·54262	200,9	0,9
·32	2·53445	207,8	0,9
·36	2·52600	214,6	0,8
·40	2·51728	221,1	0,8
5·44	2·50831	−227,6	−0,8
·48	2·49907	234,4	0,8
·52	2·48956	241,0	0,8
·56	2·47979	247,6	0,8
·60	2·46975	254,1	0,8
5·64	2·45946	−260,3	−0,8
·68	2·44893	266,5	0,8
·72	2·43814	272,9	0,8
·76	2·42710	279,1	0,8
·80	2·41581	285,3	0,8
5·84	2·40428	−291,3	−0,8
·88	2·39251	297,3	0,7
·92	2·38050	303,1	0,7
·96	2·36826	309,0	0,7
6·00	2·35578	−315,0	−0,7

1	2	3	4
J	Equation	$\overset{\Delta}{0^{d}\cdot 01}$	$\frac{1}{2}\Delta^2$
d			
6·00	2·35578	−315,0	−0,7
·04	2·34306	320,4	0,7
·08	2·33015	325,9	0,7
·12	2·31699	331,9	0,7
·16	2·30360	337,4	0,7
·20	2·29000	342,8	0,7
6·24	2·27618	−348,0	−0,7
·28	2·26216	353,3	0,7
·32	2·24792	358,4	0,6
·36	2·23349	363,4	0,6
·40	2·21885	368,6	0,7
6·44	2·20400	−374,0	−0,6
·48	2·18897	378,4	0,6
·52	2·17373	383,1	0,6
·56	2·15832	387,6	0,6
·60	2·14272	392,3	0,6
6·64	2·12694	−396,8	−0,6
·68	2·11098	401,3	0,5
·72	2·09484	405,5	0,5
·76	2·07854	409,5	0,5
·80	2·06208	413,8	0,5
6·84	2·04544	−418,0	−0,5
·88	2·02864	421,9	0,5
·92	2·01169	425,6	0,5
·96	1·99459	429,5	0,5
7·00	1·97733	433,1	0,4
7·04	1·95994	−436,5	−0,4
·08	1·94241	440,0	0,4
·12	1·92474	443,5	0,4
·16	1·90693	446,8	0,4
·20	1·88900	449,8	0,4
7·24	1·87095	−452,9	−0,4
·28	1·85277	455,9	0,4
·32	1·83448	458,6	0,3
·36	1·81608	461,4	0,3
·40	1·79757	464,1	0,3
7·44	1·77895	−466,3	−0,3
·48	1·76027	468,6	0,3
·52	1·74146	471,4	0,3
·56	1·72256	473,6	0,3
·60	1·70357	475,4	0,2
7·64	1·68453	−477,5	−0,3
·68	1·66537	479,6	0,2
·72	1·64616	481,1	0,2
·76	1·62688	482,9	0,2
·80	1·60753	484,5	0,2
7·84	1·58812	−486,0	−0,2
·88	1·56865	487,5	0,2
·92	1·54912	488,6	0,1
·96	1·52956	489,5	0,1
8·00	1·50996	−490,5	−0,1

Applied Constant: +1·34000.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

XXX *continued* **Equation of Latitude** **Argument J**

J	Equation	Δ 0 01	½ Δ^2
d 8 00	1 50996	490 5	−0 1
04	1 49 3	491 4	0 1
08	1 47 65	49 1	1
12	1 45095	49 9	1
16	1 43	493 6	0 1
20	1 41146	494 1	−0 1
8 24	1 39169	−494 5	0
28	1 37190	494 8	
32	1 35211	494 8	0 0
36	33 3	494 8	
40	1 31253	494 5	0
8 44	1 9 76	−494 3	
48	1 7 99	494 1	0 0
52	1 53 3	493 8	+0 1
56	1 3349	493 1	0 1
60	1 1378	49 5	1
8 64	1 19409	−491 8	+0 1
68	1 17444	49 9	
72	1 1548	489 9	0 1
76	1 135 5	488 6	2
80	1 11573	487 4	0
8 84	1 09626	−486 3	+0
88	1 07683	484 9	0
92	1 5747	483 3	0
96	1 3817	48 6	
9 00	1 01894	479 9	0 2
9 04	0 99978	−478 0	+0
08	98 7	476 1	0 3
12	96169	474	0 3
16	94 78	471 8	0 3
20	92395	469 6	3
9 24	9 5 1	−467 3	+0 3
28	88657	464 6	3
32	86804	46	0 3
36	84961	459 3	4
40	83130	456 3	0 4
9 44	0 81311	−453 3	+0 4
48	79504	45 3	4
52	777 9	447 3	4
56	759 6	444 1	0 4
60	74156	44 9	0 4
9 64	07 399	−437 4	+0 4
68	70657	433 8	4
72	689 9	430 3	0 5
76	67 5	4 66	0 5
80	65516	4 6	0 5
9 84	63834	−418 6	+0 5
88	6 167	414 8	5
92	6 516	41 6	5
96	58882	406 5	5
10 00	0 57 64	−402 3	+0 5

J	Equation	Δ 0 01	½ Δ^2
10 00	57264	−40 3	+0 5
04	55664	397 8	6
08	5408	393 3	0 6
12	52518	388 8	0 6
16	5 97	384 3	0 6
20	49444	379 5	6
10 24	0 47936	−374 6	+0 6
28	46447	369 6	0 6
32	44979	364 5	6
36	43531	359 6	0 6
40	4 10	354 5	0 6
10 44	40695	−349 3	+0 7
48	39308	344 0	0 7
52	37943	338 4	0 7
56	36601	332 9	0 7
60	35 80	3 7 4	7
10 64	0 3398	−3 1 8	+0 7
68	3 7 6	316 1	0 7
72	31453	310 4	0 7
76	30 23	3 4 5	0 7
80	9017	98 6	0 7
10 84	0 27834	−292 6	+0 8
88	26676	286 6	0 8
92	554	80 5	0 0
96	443	274 4	0 8
11 00	3347	268 1	0 8
11 04	87	− 61 8	+0 8
08	21253	55 4	0 8
12	0 44	249 0	0 8
16	19261	4 5	8
20	18304	236 0	8
11 24	0 17373	− 29 4	+0 8
28	16469	6	8
32	1559	16 0	0 8
36	14741	09 3	0 8
40	13918	2 2 5	8
11 44	0 131 1	−195 8	+0 9
48	1235	188 5	0 9
52	11613	181 6	9
56	10899	175 0	0 9
60	10213	167 9	0 9
11 64	0 9556	−16 9	+ 9
68	89 6	153 9	0 9
72	83 5	146 6	9
76	7753	139 5	0 9
80	7 09	13 4	0 9
11 84	6694	−1 5 1	+0 9
88	6 8	117 9	0 9
92	5751	110 6	0 9
96	53 3	103 4	0 9
12 00	0 04924	− 96 0	+ 9

J	Equation	Δ 0 01	½ Δ^2
12 00	0 049 4	− 96 0	+0 9
04	4555	88 6	0 9
08	4 15	81 3	9
12	39 5	73 9	0 9
16	3624	66 4	0 9
20	3374	58 8	0 9
12 24	0 03154	− 51 4	+0 9
28	2963	44 4	0 9
32	799	36 9	0 9
36	2668	9 3	0 9
40	2565	1 9	9
12 44	0 02493	− 14 3	+0 9
48	451	− 6 8	0 9
52	439	+ 0 6	0 9
56	456	8 0	0 9
60	2503	15 5	0 9
12 64	0 02580	+ 23 0	+0 9
68	2687	30 5	0 9
72	824	38 0	0 9
76	991	45 4	0 9
80	3187	52 9	0 9
12 84	0 03414	+ 60 3	+0 9
88	3669	67 5	0 9
92	3954	75 1	0 9
96	4 70	82 6	0 9
13 00	4615	89 9	0 9
13 04	0 04989	+ 97 1	+0 9
08	539	104 4	0 9
12	58 4	111 6	9
16	6 85	118 9	0 9
20	6775	126 3	0 9
13 24	0 07 95	+133 6	+0 9
28	7844	140 8	0 9
32	8421	147 8	0 9
36	9026	154 9	0 9
40	9660	161 9	0 9
13 44	0 103 1	+169 0	+0 9
48	1101	176 3	0 9
52	11731	183 0	0 8
56	1 476	189 8	0 9
60	13 49	196 8	0 9
13 64	0 14050	+203 6	+0 9
68	14878	10 4	0 8
72	15733	217 0	0 8
76	16614	3 8	0 8
80	175 3	30 5	0 8
13 84	18458	+ 37	+0 8
88	19419	43 5	0 8
92	20406	250 0	0 8
96	21419	56 4	0 8
14 00	0 457	+26 8	+0 8

J	Equation	Δ 0 01	½ Δ^2
14 00	0 2 457	+ 62 8	+0 8
04	3521	69 1	0 8
08	4610	275 3	0 8
12	57 3	281 3	0 8
16	6860	287 4	0 8
20	280 2	93 4	0 8
14 24	0 9207	+299 8	+0 8
28	3 4	305 9	0 7
32	31654	311 4	0 7
36	32911	317 1	0 7
40	34191	3 8	0 7
14 44	0 35493	+3 8 3	+0 7
48	36817	333 9	0 7
52	38164	339 3	0 7
56	39531	344 6	0 7
60	409 1	350 0	0 7
14 64	0 42331	+355 3	+0 7
68	43763	360 5	0 6
72	45215	365 5	0 6
76	46687	370 4	0 6
80	48178	375 4	0 6
14 84	0 49690	+380 3	+0 6
88	51220	384 9	0 6
92	5 769	389 5	0 6
96	54336	394	0 6
15 00	559 1	398 5	0 6
15 04	0 57524	+402 9	+0 5
08	59144	407 1	0 5
12	60781	411 4	0 5
16	62435	415 5	0 5
20	64105	419 4	0 5
15 24	0 65790	+423 3	+0 5
28	67491	4 7 1	0 5
32	69 07	430 9	0 5
36	70938	434 5	0 4
40	72683	438 0	0 4
15 44	0 74442	+441 4	+0 4
48	76214	444 6	0 4
52	77999	447 9	4
56	79797	451 0	0 4
60	81607	454 0	0 4
15 64	0 83429	+457 0	+0 4
68	85 63	459 9	3
72	87108	462 5	0 3
76	88963	465 0	0 3
80	90828	467 5	0 3
15 84	0 92703	+469 9	+0 3
88	94587	472 3	0 3
92	96481	474 4	0 3
96	98382	476 3	0 2
16 00	1 00291	+478 3	+0 2

Appl d C t t + 34000

[C ued p 6

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

Equations of Latitude

XXX *continued*

1	2	3	4
J	Equation	Δ $0^d·01$	½ Δ^2
d			
16·00	1·00291	+478,3	+0,2
·04	1·02208	480,1	0,2
·08	1·04132	481,9	0,2
·12	1·06063	483,5	0,2
·16	1·08000	485,0	0,2
·20	1·09943	486,4	0,2
16·24	1·11891	+487,6	+0,2
·28	1·13844	488,9	0,2
·32	1·15802	490,0	0,1
·36	1·17764	491,0	0,1
·40	1·19730	491,8	0,1
16·44	1·21698	+492,5	+0,1
·48	1·23670	493,3	0,1
·52	1·25644	493,8	+0,1
·56	1·27620	494,1	0,0
·60	1·29597	494,5	0,0
16·64	1·31576	+494,8	0,0
·68	1·33555	494,9	0,0
·72	1·35535	494,8	0,0
·76	1·37513	494,5	0,0
·80	1·39491	494,4	0,0
16·84	1·41468	+494,0	−0,1
·88	1·43443	493,5	0,1
·92	1·45416	492,9	0,1
·96	1·47386	491,9	0,1
17·00	1·49351	491,1	0,1
17·04	1·51315	+490,5	−0,1
·08	1·53275	489,5	0,1
·12	1·55231	488,4	0,2
·16	1·57182	487,1	0,2
·20	1·59128	485,8	0,2
17·24	1·61068	+484,3	−0,2
·28	1·63002	482,8	0,2
·32	1·64930	481,0	0,2
·36	1·66850	479,1	0,2
·40	1·68763	477,1	0,3
17·44	1·70667	+475,1	−0,3
·48	1·72564	473,0	0,3
·52	1·74451	470,8	0,3
·56	1·76330	468,5	0,3
·60	1·78199	466,1	0,3
17·64	1·80059	+463,6	−0,3
·68	1·81908	460,9	0,3
·72	1·83746	458,1	0,3
·76	1·85573	455,4	0,4
·80	1·87389	452,5	0,4
17·84	1·89193	+449,4	−0,4
·88	1·90984	446,1	0,4
·92	1·92762	442,8	0,4
·96	1·94526	439,4	0,4
18·00	1·96277	+436,1	−0,4

Constant: +1·34000.

XXXI

1	2	3	1	2	3	1	2	3
M	Equation	Δ $0^d·01$	M	Equation	Δ $0^d·01$	M	Equation	Δ $0^d·01$
d			d			d		
0·00	0·14000	+50,4	2·50	0·24804	+29,6	5·00	0·26722	−15,4
·05	·14252	50,3	·55	·24950	28,8	·05	·26643	16,3
·10	·14503	50,2	·60	·25092	28,0	·10	·26559	17,2
·15	·14754	50,2	·65	·25230	27,2	·15	·26471	18,1
·20	·15005	50,2	·70	·25364	26,4	·20	·26378	19,1
·25	·15256	50,1	·75	·25494	25,6	·25	·26280	20,0
0·30	0·15506	+50,0	2·80	0·25620	+24,8	5·30	0·26178	−20,8
·35	·15756	49,9	·85	·25742	24,0	·35	·26072	21,6
·40	·16005	49,7	·90	·25860	23,2	·40	·25962	22,4
·45	·16253	49,6	·95	·25974	22,5	·45	·25848	23,3
·50	·16501	49,5	3·00	·26085	21,6	·50	·25729	24,2
0·55	0·16748	+49,3	3·05	0·26190	+20,6	5·55	0·25606	−25,0
·60	·16994	49,1	·10	·26291	19,8	·60	·25479	25,8
·65	·17239	48,9	·15	·26388	18,9	·65	·25348	26,6
·70	·17483	48,6	·20	·26480	18,0	·70	·25213	27,4
·75	·17725	48,3	·25	·26568	17,1	·75	·25074	28,2
0·80	0·17966	+48,1	3·30	0·26651	+16,2	5·80	0·24931	−28,9
·85	·18206	47,8	·35	·26730	15,4	·85	·24785	29,6
·90	·18444	47,4	·40	·26805	14,5	·90	·24635	30,4
·95	·18680	47,1	·45	·26875	13,5	·95	·24481	31,2
1·00	·18915	46,8	·50	·26940	12,6	6·00	·24323	32,0
1·05	0·19148	+46,4	3·55	0·27001	+11,7	6·05	0·24161	−32,7
·10	·19379	46,0	·60	·27057	10,7	·10	·23996	33,4
·15	·19608	45,6	·65	·27108	9,8	·15	·23827	34,1
·20	·19835	45,2	·70	·27155	8,9	·20	·23655	34,7
·25	·20060	44,8	·75	·27197	7,9	·25	·23480	35,4
1·30	0·20283	+44,4	3·80	0·27234	+ 7,0	6·30	0·23301	−36,1
·35	·20504	44,0	·85	·27267	6,1	·35	·23119	36,8
·40	·20723	43,6	·90	·27295	5,1	·40	·22933	37,5
·45	·20940	43,1	·95	·27318	4,2	·45	·22744	38,1
·50	·21154	42,6	4·00	·27337	3,3	·50	·22552	38,7
1·55	0·21366	+42,1	4·05	0·27351	+ 2,3	6·55	0·22357	−39,3
·60	·21575	41,5	·10	·27360	1,4	·60	·22159	39,9
·65	·21781	40,9	·15	·27365	+ 0,5	·65	·21958	40,5
·70	·21984	40,3	·20	·27365	− 0,5	·70	·21754	41,0
·75	·22184	39,7	·25	·27360	1,5	·75	·21548	41,5
1·80	0·22381	+39,1	4·30	0·27350	− 2,4	6·80	0·21339	−42,1
·85	·22575	38,5	·35	·27336	3,3	·85	·21127	42,6
·90	·22766	37,9	·40	·27317	4,3	·90	·20913	43,1
·95	·22954	37,3	·45	·27293	5,3	·95	·20696	43,6
2·00	·23139	36,7	·50	·27264	6,2	7·00	·20477	43,9
2·05	0·23321	+36,1	4·55	0·27231	− 7,1	7·05	0·20257	−44,3
·10	·23500	35,4	·60	·27193	8,1	·10	·20034	44,9
·15	·23675	34,7	·65	·27150	9,0	·15	·19808	45,4
·20	·23847	34,0	·70	·27103	9,9	·20	·19580	45,8
·25	·24015	33,3	·75	·27051	10,9	·25	·19350	46,1
2·30	0·24180	+32,7	4·80	0·26994	−11,8	7·30	0·19119	−46,4
·35	·24342	32,0	·85	·26933	12,7	·35	·18886	46,8
·40	·24500	31,2	·90	·26867	13,6	·40	·18651	47,2
·45	·24654	30,4	·95	·26797	14,5	·45	·18414	47,5
2·50	0·24804	+29,6	5·00	0·26722	−15,4	7·50	0·18176	−47,8

Applied Constant: +0·14000.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

XXXI *continued* | **Equation of Latitude** | **Argument M**

M	Equation	3 Δ 0d 01	M	Equation	3 Δ 0 0	M	Equation	3 Δ 0 01	M	Equation	3 Δ 0d 01	M	Equation	3 Δ 0d 01
												d		
7 50	0 18176	-47 8	10 00	0 06194	-40 9	12 50	0 00635	- 0 3	15 00	0 06067	+40 6	17 50	0 18025	+48 1
55	17936	48 1	05	5991	40 3	55	636	+ 0 6	05	6 71	41 1	55	18265	47 8
60	17695	48 3	10	5791	39 7	60	641	1 5	10	6478	41 6	60	18503	47 4
65	17453	48 6	15	5594	39 0	65	651	2 5	15	6687	4 1	65	18739	47 0
70	17 9	48 9	20	54 1	38 4	70	666	3 5	20	6899	42 6	70	18973	46 6
75	16964	49 1	25	5 10	37 9	75	686	4 5	25	7113	43 1	75	19205	46 3
7 80	16718	-49 3	10 30	0 0502	-37 3	12 80	0 00711	+ 5 4	15 30	0 07330	+43 6	17 80	0 19436	+45 9
85	16471	49 5	35	4837	36 7	85	74	6 3	35	7549	44 0	85	19664	45 5
90	16 3	49 6	40	4655	36 0	90	774	7 3	40	7770	44 5	90	19891	45 1
95	15975	49 7	45	4477	35 3	95	813	8	45	7994	45 0	95	0115	44 7
8 00	157 6	49 9	50	4302	34 6	13 00	856	9 1	50	8220	45 4	18 00	20338	44 3
8 05	0 15476	-50 0	10 55	0 04131	-33 9	13 05	0 00904	+10 1	15 55	0 08448	+45 8	18 05	0 20558	+43 9
10	15 6	5 1	60	3963	33	10	957	11 0	60	8678	46	10	20777	43 5
15	14975	50 2	65	3799	3 5	15	1014	11 9	65	8910	46 6	15	0993	43 0
20	147 4	50	70	3638	31 8	20	1076	1 8	70	9144	46 9	20	21 07	42 5
25	14473	50 3	75	3481	31	25	11[illegible]	13 7	75	9379	47 2	25	1418	41 9
8 30	0 14 1	-5 4	10 80	0 03328	-30 3	13 30	0 01 13	+14 6	15 80	0 9616	+47 5	18 30	0 21626	+41 4
35	13969	50 4	85	3178	29 6	35	1 88	15 5	85	09854	47 8	35	2183	40 8
40	13717	50 3	90	3032	28 8	40	1368	16 4	90	10094	48 1	40	034	40 1
45	13466	50 2	95	890	28 0	45	1452	17 3	95	10335	48 4	45	22233	39 5
50	13 15	50 2	11 00	752	27	50	1541	18 2	16 00	10578	48 7	50	22429	39 0
8 55	0 12964	-5 2	11 05	0 0 618	6 4	13 55	0 01634	+19 1	16 05	0 10822	+48 9	18 55	0 22623	+38 5
60	12713	50 1	10	488	25 6	60	173	0 0	10	11067	49 1	60	814	37 8
65	12463	5 0	15	362	4 8	65	1834	0 9	15	11313	49 3	65	3001	37 0
70	12 13	49 9	20	40	23 9	70	1941	1 8	20	11560	49 5	70	3184	36 5
75	11964	49 7	25	1 3	23 0	75	052	2 6	25	11808	4) 7	75	3366	36 0
8 80	0 11716	-49 5	11 30	0 02010	- 2	13 80	0 02167	+23 4	16 30	0 1 057	+49 8	18 80	0 23544	+35
85	11469	49 4	35	1901	1 4	85	2286	24	35	1 306	49 9	85	23718	34 5
90	11	49 3	40	1796	20 5	90	409	5 0	40	1 556	50	90	3889	33 8
95	10976	49 1	45	1696	19 6	95	536	5 8	45	1 806	50 1	95	24056	33 1
9 00	10731	48 8	50	16	18 8	14 00	2667	26 6	50	13057	50 2	19 00	4 20	32 6
9 05	0 10488	-48 5	11 55	0 01508	-17 9	14 05	0 0 80	+27 4	16 55	0 13308	+50 2	19 05	0 4382	+31 9
10	10 46	48 3	60	1421	17 0	10	2941	8	60	13559	50 2	10	24539	31 0
15	1 005	48	65	1338	16 1	15	3084	9	65	13810	50 3	15	24692	30 2
20	09766	47 7	70	1 60	15	20	3 31	29 8	70	14062	50 4	20	24841	9 4
25	095 8	47 5	75	1186	14 3	25	3382	30 6	75	14314	50 3	25	4986	8 6
9 30	09 91	-47 2	11 80	0 01117	-13 4	14 30	0 03537	+31 4	16 80	0 14565	+50	19 30	0 5127	+27 8
35	9 56	46 8	85	1052	1 5	35	3696	32	85	14816	50	35	25264	7 0
40	8823	46 4	90	992	11 5	40	3859	3 9	90	15067	5	40	5397	6 2
45	8592	46	95	937	1 6	45	40 5	33 5	95	15318	50 1	45	5526	25 4
50	8363	45 6	12 00	886	9 7	50	4194	34	17 00	15568	50 0	50	5651	24 6
9 55	0 08136	-45	12 05	0 00840	- 8 8	14 55	0 04367	+34 9	17 05	0 15818	+49 9	19 55	0 25772	+23 8
60	7911	44 8	10	798	7 9	60	4543	35 5	10	16067	49 7	60	5889	23 0
65	7688	44 4	15	761	6 9	65	47 2	36	15	16315	49 5	65	6002	2 3
70	7467	43 9	20	7 9	5 9	70	4905	36 9	20	16562	49 4	70	6112	21 4
75	7 49	43 4	25	7	5 0	75	5 91	37 5	25	168 9	49	75	26 16	0 3
9 80	0 7033	-43	12 30	0 00679	- 4 1	14 80	05 80	+38 1	17 30	0 17 54	+48 9	19 80	0 6315	+19 5
85	6819	4 5	35	661	3 1	85	5472	38 7	35	17298	48 8	85	6411	18 7
90	6608	41 9	40	648	2	90	5667	39 3	40	1754	48 6	90	2650	17 8
95	640	41 4	45	639	1 3	95	5865	40 0	45	17784	48 3	95	26589	17 0
10 00	0 6194	-40 9	50	0 00635	- 0 3	15 00	0 06067	+40 6	50	0 18025	+48 1	20 00	0 2667	+16

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

XXXII Equation of Latitude Argument N

1	2	3	1	2	3	1	2	3	1	2	3
N	Equation	Δ	**N**	Equation	Δ	**N**	Equation	Δ	**N**	Equation	Δ
d			d			d			d		
0·0	0·01680	− 55	**5·0**	0·00295	+ 17	**10·0**	0·02532	+ 45	**15·0**	0·02542	− 45
·1	1625	55	**·1**	313	19	**·1**	2576	43	**·1**	2497	46
·2	1570	55	**·2**	333	21	**·2**	2618	42	**·2**	2451	47
·3	1516	55	**·3**	355	23	**·3**	2659	41	**·3**	2404	48
·4	1461	55	**·4**	379	25	**·4**	2699	39	**·4**	2356	49
·5	1407	54	**·5**	404	26	**·5**	2737	38	**·5**	2307	50
0·6	0·01353	− 54	**5·6**	0·00431	+ 28	**10·6**	0·02774	+ 36	**15·6**	0·02257	− 51
·7	1300	53	**·7**	460	30	**·7**	2809	35	**·7**	2206	51
·8	1248	52	**·8**	491	32	**·8**	2843	33	**·8**	2155	52
·9	1196	52	**·9**	523	33	**·9**	2875	32	**·9**	2103	53
1·0	1144	52	**6·0**	557	35	**11·0**	2906	30	**16·0**	2050	53
1·1	0·01093	− 51	**6·1**	0·00593	+ 37	**11·1**	0·02935	+ 28	**16·1**	0·01997	− 54
·2	1043	50	**·2**	631	38	**·2**	2962	26	**·2**	1943	55
·3	994	49	**·3**	669	39	**·3**	2987	25	**·3**	1888	55
·4	946	48	**·4**	709	41	**·4**	3011	23	**·4**	1834	54
·5	899	46	**·5**	750	42	**·5**	3032	20	**·5**	1780	55
1·6	0·00854	− 45	**6·6**	0·00793	+ 44	**11·6**	0·03051	+ 19	**16·6**	0·01725	− 55
·7	810	44	**·7**	837	45	**·7**	3069	17	**·7**	1670	55
·8	767	43	**·8**	882	46	**·8**	3084	14	**·8**	1616	55
·9	725	42	**·9**	928	47	**·9**	3097	12	**·9**	1561	55
2·0	684	40	**7·0**	975	48	**12·0**	3108	11	**17·0**	1507	54
2·1	0·00645	− 39	**7·1**	0·01023	+ 49	**12·1**	0·03118	+ 9	**17·1**	0·01453	− 55
·2	607	37	**·2**	1072	50	**·2**	3126	7	**·2**	1398	54
·3	571	36	**·3**	1122	51	**·3**	3131	5	**·3**	1345	53
·4	536	34	**·4**	1173	52	**·4**	3136	+ 2	**·4**	1292	53
·5	503	32	**·5**	1225	52	**·5**	3136	0	**·5**	1239	52
2·6	0·00472	− 31	**7·6**	0·01277	+ 53	**12·6**	0·03136	− 2	**17·6**	0·01188	− 52
·7	442	29	**·7**	1330	54	**·7**	3133	5	**·7**	1136	52
·8	414	27	**·8**	1384	54	**·8**	3127	7	**·8**	1085	51
·9	388	26	**·9**	1438	54	**·9**	3120	8	**·9**	1035	50
3·0	363	24	**8·0**	1492	54	**13·0**	3111	10	**18·0**	986	49
3·1	0·00340	− 22	**8·1**	0·01546	+ 55	**13·1**	0·03100	− 12	**18·1**	0·00938	− 47
·2	319	20	**·2**	1601	55	**·2**	3087	14	**·2**	892	46
·3	301	17	**·3**	1656	55	**·3**	3072	16	**·3**	847	45
·4	286	15	**·4**	1711	56	**·4**	3055	18	**·4**	802	44
·5	271	14	**·5**	1767	56	**·5**	3036	20	**·5**	759	42
3·6	0·00258	− 12	**8·6**	0·01822	+ 55	**13·6**	0·03015	− 22	**18·6**	0·00718	− 41
·7	248	10	**·7**	1876	54	**·7**	2992	24	**·7**	678	40
·8	239	8	**·8**	1930	54	**·8**	2967	26	**·8**	639	39
·9	232	6	**·9**	1984	54	**·9**	2941	27	**·9**	601	37
4·0	227	4	**9·0**	2038	54	**14·0**	2913	29	**19·0**	565	35
4·1	0·00225	− 2	**9·1**	0·02091	+ 53	**14·1**	0·02883	− 31	**19·1**	0·00531	− 34
·2	224	+ 1	**·2**	2143	52	**·2**	2852	32	**·2**	498	33
·3	226	3	**·3**	2195	52	**·3**	2819	34	**·3**	466	31
·4	229	5	**·4**	2246	51	**·4**	2784	36	**·4**	436	29
·5	235	7	**·5**	2296	50	**·5**	2747	38	**·5**	408	27
4·6	0·00243	+ 9	**9·6**	0·02345	+ 49	**14·6**	0·02708	− 39	**19·6**	0·00382	− 25
·7	253	11	**·7**	2393	48	**·7**	2669	40	**·7**	359	23
·8	265	13	**·8**	2440	47	**·8**	2628	42	**·8**	337	21
·9	279	15	**·9**	2486	46	**·9**	2586	43	**·9**	317	20
5·0	0·00295	+ 17	**10·0**	0·02532	+ 45	**15·0**	0·02542	− 45	**20·0**	0·00298	− 18

Applied Constant: +0·01680.

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

Equations of Latitude

XXXIII

O	Equation	Δ^3_0	O	Equation	Δ^3_0
00	0 0	+ 8	100	0 0 099	− 7
2	35	8	102	86	6
4	5	8	4	74	6
6	68	8	6	62	6
8	284	8	8	5	5
10	99	8	110	42	5
12	0 0314	+ 7	112	0 00033	− 4
4	3 8	7	4	26	4
6	34	7	6	19	3
8	355	6	8	14	2
20	367	6	120	10	
22	0 00378	+ 6	122	0 00007	− 1
4	389	5	4	5	− 1
6	398	5	6	4	0
8	407	4	8	4	+ 1
30	414	4	130	6	1
32	0 004 1	+ 3	132	0 00009	+
4	4 6	3	4	13	2
6	431	2	6	18	3
8	434	1	8	25	4
40	435	+ 1	140	3	4
42	0 00436	0	142	0 00041	+ 5
4	435	1	4	50	5
6	434	1	6	61	6
8	431		8	7	6
50	4 6	3	150	84	6
52	0 004 1	− 3	152	0 00097	+ 7
4	415	4	4	111	7
6	4 7	4	6	125	7
8	399	5	8	140	8
60	389	5	160	155	8
62	0 00379	− 6	162	0 00171	+ 8
4	367	6	4	186	8
6	355	6	6	0	8
8	34	7	8	18	8
70	3 9	7	170	35	8
72	0 00314	− 8	172	0 00 51	+ 8
4	99	8	4	267	8
6	84	8	6	28	8
8	69	8	8	97	8
80	53	8	180	312	7
82	0 00 37	− 8	182	0 003 6	+ 7
4	1	8	4	34	7
6	05	8	6	353	7
8	189	8	8	366	6
90	173	8	190	377	6
92	0 00157	− 8	192	0 0388	+ 5
4	14	8	4	398	5
6	1 7	7	6	406	4
8	113	7	8	414	4
100	0 0 099	− 7	200	0 042	+ 3

Appl d C t t +

XXXIV / **XXXV** / **XXXVI**

P (d)	Equation	Q	Equation	R (d)	Equation
00	0 00030	00	0 00040	00	0 00030
04	34	04	45	04	26
08	37	08	49	08	21
12	41	12	53	12	17
16	44	16	57	16	14
20	47	20	61	20	1
24	0 00049	24	0 00064	24	0 00007
28	51	28	66	28	5
32	53	32	68	32	3
36	54	36	69	36	2
40	55	40	70	40	1
44	0 00055	44	0 00070	44	0 00001
48	54	48	70	48	2
52	53	52	68	52	3
56	5	56	66	56	5
60	50	60	63	60	7
64	0 00047	64	0 00060	64	0 00010
68	44	68	56	68	14
72	41	72	52	72	18
76	38	76	48	76	22
80	34	80	44	80	6
84	0 00030	84	0 00039	84	0 00030
88	7	88	35	88	35
92	23	92	30	92	39
96	20	96	6	96	43
100	16	100		100	47
104	0 00013	104	0 00019	104	0 00050
108	11	108	16	108	53
112	9	112	13	112	55
116	7	116	1	116	57
120	6	120	10	120	58
124	0 00005	124	0 00010	124	0 00059
128	5	128	10	128	59
132	5	132	11	132	58
136	6	136	13	136	57
140	8	140	15	140	55
144	00010	144	0 00018	144	0 00052
148	1	148	21	148	49
152	15	152	25	152	46
156	18	156	9	156	42
160	2	160	33	160	38
164	0 000 6	164	0 00037	164	0 00034
168	29	168	4	168	29
172	33	172	46	172	25
176	37	176	51	176	21
180	40	180	55	180	17
184	0 00043	184	0 0 059	184	0 00013
188	46	188	62	188	1
192	49	192	65	192	7
196	51	196	67	196	5
200	0 00053	200	0 00069	200	0 000 3

C t t + ∞   C t t + ∞   C t t + ∞

SATELLITE IV

Tables of Longitude, Latitude, and Radius Vector

Equations of Latitude

XXXVII

Occultations and Transits

To correct for the Jovicentric Latitude of the Earth, the Satellite's Latitude as derived from Tables XXX–XXXVI must be supplemented by the term—

$$\pm \underset{(9{\cdot}808611)}{{\cdot}643593}\, R_1 \sin(\odot - \Omega)/\Delta \quad \begin{cases} +\text{Oc.} \\ -\text{Tr.} \end{cases}$$

where R_1, Δ are the Geocentric Distances of the Sun and Jupiter respectively, and ☊ the Longitude of the Ascending Node of Jupiter's Orbit on the Ecliptic. For Occultations employ the natural sign, for Transits the reversed sign.

XXXVIII

Correction of Latitude for Shadows and Transits

1	2
Lat.	Correction.
0·5	− ·00485
0·6	437
0·7	388
0·8	340
0·9	291
1·0	243
1·1	− ·00194
1·2	146
1·3	97
1·4	− 49
1·5	0
1·6	+ ·00049
1·7	97
1·8	146
1·9	194
2·0	243
2·1	+ ·00291
2·2	340
2·3	388
2·4	437
2·5	+ ·00485

This Correction to be applied to Latitude as derived from Tables XXX—XXXVI, before using as an Argument of Semi-duration for Shadows and Transits.

XXXIX

Angle above Jupiter's Orbit

1	2	3	4
Lat.	Angle	Lat.	Δ
0·0	° − 3·0496 +	**3·0**	2030
0·1	2·8466	**2·9**	2031
0·2	2·6435	**2·8**	2031
0·3	2·4404	**2·7**	2031
0·4	2·2373	**2·6**	2032
0·5	2·0341	**2·5**	2033
0·6	− 1·8308 +	**2·4**	2033
0·7	1·6275	**2·3**	2033
0·8	1·4242	**2·2**	2034
0·9	1·2208	**2·1**	2034
1·0	1·0175	**2·0**	2035
1·1	− 0·8139 +	**1·9**	2035
1·2	0·6105	**1·8**	2035
1·3	0·4070	**1·7**	2035
1·4	− 0·2035 +	**1·6**	2035
1·5	0·0000	**1·5**	2035

This Table shows the Angle of the Radius Vector of the Satellite above Jupiter's Orbit, which corresponds to the Latitude as derived from Tables XXX—XXXVI.

SATELLITE IV

Tables

of the

Synodic Motion,

Duration of the Phenomena of Eclipse, Occultation, Transit and Shadow-Transit,

with

Equations for Reduction to the Middle, Corrections for Jupiter's Phase,

and the

Light-Curve of Eclipse

SATELLITE IV

Tables of Synodic Motion

XL

1	2	1	2	1	2	1	2	1	2
Angle	Syn. Value	Angle	Syn. Value	Angle	Syn. Value	Angle	Syn. Value	Angle	Syn. Value
°	d	°	d	°	d	°	d	°	d
0·000	0·000000	0·020	0·000931	0·040	0·001862	0·060	0·002792	0·080	0·003723
1	47	21	977	41	1908	61	2839	81	3770
2	93	22	1024	42	1955	62	2885	82	3816
3	140	23	1070	43	2001	63	2932	83	3863
4	186	24	1117	44	2048	64	2978	84	3909
5	233	25	1163	45	2094	65	3025	85	3956
0·006	0·000279	0·026	0·001210	0·046	0·002141	0·066	0·003071	0·086	0·004002
7	326	27	1257	47	2187	67	3118	87	4049
8	372	28	1303	48	2234	68	3165	88	4095
9	419	29	1350	49	2280	69	3211	89	4142
10	465	30	1396	50	2327	70	3258	90	4188
0·011	0·000512	0·031	0·001443	0·051	0·002373	0·071	0·003304	0·091	0·004235
12	558	32	1489	52	2420	72	3351	92	4282
13	605	33	1536	53	2466	73	3397	93	4328
14	652	34	1582	54	2513	74	3444	94	4375
15	698	35	1629	55	2560	75	3490	95	4421
0·016	0·000745	0·036	0·001675	0·056	0·002606	0·076	0·003537	0·096	0·004468
17	791	37	1722	57	2653	77	3583	97	4514
18	838	38	1768	58	2699	78	3630	98	4561
19	884	39	1815	59	2746	79	3676	99	4607
0·020	0·000931	0·040	0·001862	0·060	0·002792	0·080	0·003723	0·100	0·004654

XLI

1	2
Angle	Syn. Value
°	d
0·0	0·000000
·1	4654
·2	9308
·3	13961
·4	18615
·5	23269
0·6	0·027923
·7	32576
·8	37230
·9	41884
1·0	0·046538

These Tables show the time occupied in describing any angle with the Mean Synodic Motion, and are to be used for converting into time the Complement, or excess of the longitude of Jupiter above that of the Satellite at the approximate time of conjunction given by Tables I–VIII.

To allow for the true Motion, increase the entry taken from column 2 by its product by the Variation as given by Tables XXVI–XXIX.

SATELLITE IV

Tables of the Phenomena

XLII — Correction of High Latitudes for Variation

Var / Lat	−0 160	−0 156	−0 152	−0 148	−0 144	−0 140	−0 136	−0 132	−0 128	−0 124	−0 120	−0 116	−0 112	−0 108	−0 104	−0 100	−0 096	−0 092	−0 088	−0 084	−0 080	Var / Lat
0 50	+770	+752	+733	+714	+695	+677	+658	+639	+6	+60	+581	+563	+544	+5 5	+505	+486	+468	+449	+429	+410	+390	0 50
52	+7	+705	+687	+669	+65	+634	+617	+599	+581	+564	+546	+5 9	+510	+492	+475	+456	+438	+421	+402	+385	+367	52
54	+674	+658	+641	+6 5	+609	+59	+576	+559	+543	+5 6	+509	+493	+477	+459	+443	+426	+4 9	+393	+376	+359	+343	54
56	+6 5	+610	+595	+580	+565	+549	+533	+518	+503	+488	+473	+457	+44	+4 6	+410	+395	+380	+364	+349	+333	+318	56
58	+575	+561	+547	+533	+519	+5 5	+491	+477	+464	+449	+435	+4 1	+406	+39	+379	+364	+350	+336	+321	+307	+29	58
60	+5 4	+511	+499	+486	+474	+461	+448	+435	+4	+410	+396	+384	+371	+358	+345	+33	+319	+306	+293	+280	+266	60
0 62	+47	+461	+45	+439	+4 6	+415	+404	+393	+38	+369	+358	+347	+334	+323	+311	+300	+288	+276	+265	+252	+241	0 62
64	+420	+41	+4 0	+389	+379	+369	+360	+350	+339	+3 9	+318	+308	+298	+ 87	+ 77	+ 66	+256	+ 45	+ 35	+ 4	+ 15	64
66	+367	+358	+349	+340	+33	+323	+313	+305	+ 96	+287	+278	+ 7	+26	+251	+ 4	+ 33	+ 4	+ 15	+206	+197	+187	66
68	+31	+305	+ 97	+ 90	+ 8	+ 74	+ 67	+ 6	+252	+ 45	+237	+ 9	+ 2	+ 14	+ 07	+199	+191	+183	+175	+168	+160	68
70	+ 57	+250	+ 44	+ 38	+ 3	+226	+ 2	+213	+ 08	+ 01	+195	+188	+183	+177	+170	+163	+157	+151	+145	+138	+131	70
0 72	+	+194	+190	+186	+181	+176	+171	+167	+161	+157	+153	+147	+14	+138	+13	+1 8	+123	+118	+113	+108	+103	0 72
74	+14	+138	+135	+131	+1 8	+1 5	+12	+119	+115	+11	+108	+105	+10	+ 98	+ 95	+ 91	+ 88	+ 84	+ 80	+ 78	+ 74	74
76	+ 8	+ 80	+ 78	+ 77	+ 74	+ 73	+ 71	+ 69	+ 67	+ 65	+ 63	+ 61	+ 60	+ 58	+ 55	+ 54	+ 52	+ 49	+ 48	+ 46	+ 43	76
78	+ 0	+ 21	+ 2	+ 0	+ 19	+	+ 19	+ 18	+ 18	+ 18	+ 18	+ 17	+ 16	+ 17	+ 16	+ 15	+ 15	+ 14	+ 14	+ 13	+ 13	78
80	− 43	− 41	− 40	− 38	− 38	− 37	− 35	− 34	− 33	− 31	− 30	− 29	− 28	− 27	− 26	− 4	− 3	− 2	− 22	− 20	− 19	80
0 82	−1 7	−104	−101	− 98	− 96	− 9	− 9	− 87	− 85	− 81	− 79	− 76	− 74	− 70	− 68	− 65	− 63	− 59	− 57	54	− 5	0 82
84	−174	−169	−164	−160	−156	−15	−147	−14	−138	−134	−1 9	−1 5	−1 0	−116	111	−107	−103	− 98	− 94	− 90	− 85	84
86	− 4	−236	− 3	−2 4	− 17	− 11	− 05	−199	−193	186	−18	−174	−169	−163	−157	−151	−144	−138	−132	−1 6	−120	86
88	−314	−3 5	−297	− 89	− 8	− 74	−266	258	− 5	−243	− 34	−226	−218	−211	− 03	−195	−187	−180	−172	−164	−156	88
90	−387	−376	−367	−357	−347	−338	−3 8	−318	−309	− 99	− 89	− 80	−27	−260	−251	− 41	−23	22	−212	−203	−193	90
0 92	−46	−45	−440	−4 9	−417	−405	−394	−382	−371	−359	−347	−336	324	−313	−301	− 89	−278	−266	− 55	−244	−232	0 92
94	−542	−529	−516	−50	−489	475	−461	−448	−435	−4 1	−408	−394	−380	−367	−353	−339	−3 7	−313	− 99	−286	−272	94
0 96	−6 6	−610	−594	−578	−563	−548	−53	−517	−501	−485	−470	−455	−439	−423	−407	39	−377	361	−345	−330	−314	0 96

XLII *continued*

Var / Lat	−0 080	−0 076	−0 072	−0 068	−0 064	−0 060	−0 056	−0 052	−0 048	−0 044	−0 040	−0 036	−0 032	−0 028	−0 024	−0 020	−0 016	−0 012	−0 008	−0 004	0 000	Var / Lat
0 50	+390	+37	+35	+333	+313	+ 94	+ 74	+256	+ 36	+ 16	+197	+177	+157	+138	+118	+ 99	+ 79	+ 59	+ 40	+ 20	0	0 50
52	+367	+348	+331	+31	+ 95	+ 75	+257	+ 40	+ 1	+ 3	+185	+166	+148	+129	+111	+ 93	+ 74	+ 56	+ 37	+ 19	0	52
54	+343	+3 5	+309	+ 91	+275	+ 58	+ 40	+ 24	+ 06	+189	+173	+155	+138	+121	+104	+ 87	+ 69	+ 52	+ 35	+ 17	0	54
56	+318	+3 1	+ 86	+ 70	+ 55	+239	+ 3	+ 08	+191	+175	+16	+144	+1 8	+11	+ 97	+ 81	+ 64	+ 48	+ 3	+ 16	0	56
58	+ 9	+ 78	+263	+ 50	+ 35	+ 0	+206	+191	+176	+162	+148	+133	+118	+103	+ 89	+ 74	+ 59	+ 45	+ 30	+ 15	0	58
60	+266	+254	+ 4	+ 8	+ 14	+2 1	+188	+174	+161	+148	+135	+121	+107	+ 94	+ 81	+ 68	+ 54	+ 41	+ 7	+ 13	0	60
0 62	+ 41	+ 9	+ 17	+205	+193	+181	+170	+157	+145	+134	+1 2	+109	+ 97	+ 85	+ 74	+ 61	+ 49	+ 37	+ 25	+ 12	0	0 62
64	+ 15	+ 04	+194	+183	+172	+16	+151	+140	+1 9	+119	+108	+ 97	+ 86	+ 75	+ 66	+ 55	+ 44	+ 33	+ 22	+ 11	0	64
66	+187	+178	+169	+160	+150	+14	+13	+1	+114	+1 4	+ 95	+ 85	+ 75	+ 67	+ 57	+ 48	+ 38	+ 29	+ 19	+ 10	0	66
68	+160	+15	+144	+136	+1 9	+1 1	+113	+1 4	+ 97	+ 89	+ 81	+ 73	+ 64	+ 57	+ 49	+ 41	+ 33	+ 5	+ 16	+ 8	0	68
70	+13	+1 6	+119	+11	+1 6	+100	+ 93	+ 86	+ 80	+ 73	+ 67	+ 60	+ 53	+ 47	+ 41	+ 34	+ 27	+ 20	+ 14	+ 7	0	70
0 72	+103	+ 98	+ 93	+ 88	+ 83	+ 78	+ 7	+ 68	+ 63	+ 58	+ 52	+ 47	+ 42	+ 37	+ 3	+ 27	+ 21	+ 16	+ 11	+ 5	0	0 72
74	+ 74	+ 70	+ 67	+ 63	+ 59	+ 56	+ 52	+ 49	+ 45	+ 41	+ 37	+ 34	+ 31	+ 7	+ 3	+ 19	+ 15	+ 1	+ 8	+ 4	0	74
76	+ 43	+ 4	+ 40	+ 37	+ 35	+ 33	+ 31	+ 29	+ 7	+ 5	+ 22	+ 0	+ 19	+ 16	+ 14	+ 12	+ 9	+ 7	+ 5	+ 2	0	76
78	+ 13	+ 1	+ 1	+ 11	+ 10	+ 10	+ 1	+ 9	+ 8	+ 7	+ 7	+ 7	+ 6	+ 5	+ 5	+ 4	+ 3	+	+ 2	+ 1	0	78
80	− 19	− 18	− 17	− 16	− 15	− 14	− 13	− 11	− 1	− 10	− 9	− 8	− 7	− 6	− 5	− 4	− 3	− 3	− 2	− 1	0	80
0 82	− 5	− 49	− 47	− 43	− 41	− 38	− 36	− 34	− 31	− 8	− 5	− 22	− 20	− 17	− 15	− 12	− 10	− 7	− 5	− 2	0	0 82
84	− 85	− 81	− 76	− 72	− 68	− 64	− 60	− 55	− 51	− 46	− 42	− 38	− 34	− 29	− 25	− 21	− 17	− 13	− 8	− 4		84
86	−1 0	−114	−108	−10	− 96	− 90	− 84	− 77	− 7	− 66	− 59	− 54	− 48	− 42	− 36	− 30	− 24	− 18	− 12	− 6	0	86
88	−156	− 49	−141	−13	−1 4	−116	−1 9	−1 1	− 9	− 85	− 78	− 70	− 62	− 54	− 47	− 39	− 31	− 3	− 16	− 8	0	88
90	−193	−183	−174	−164	−154	−145	−135	−1 5	−116	−106	− 96	− 87	− 77	− 67	− 58	− 48	− 39	− 29	− 19	− 10	0	90
0 92	− 32	− 1	− 09	−197	−186	−174	−163	−151	−139	−1 8	−116	−1 4	− 93	− 81	− 7	58	− 46	35	− 23	− 12	0	0 92
94	−27	− 58	−245	− 31	− 17	− 04	−191	−178	−164	−150	−137	−123	−109	− 95	− 8	− 68	− 55	− 41	− 27	− 14	0	94
0 96	−314	− 99	− 82	− 67	−252	− 36	− 20	− 4	−188	−174	−158	−142	−1 6	−111	− 95	− 79	− 63	− 47	− 32	− 16		0 96

Th T bl mpl m t y t T bl XLVI d ppl rr ti t L tit d Th it qual 0000

XLII *continued* **Correction of High Latitudes for Variation**

Var. / Lat.	·0 000	+·0 004	+·0 008	+·0 012	+·0 016	+·0 020	+·0 024	+·0 028	+·0 032	+·0 036	+·0 040	+·0 044	+·0 048	+·0 052	+·0 056	+·0 060	+·0 064	+·0 068	+·0 072	+·0 076	+·0 080	Var. / Lat.
0·50	0	−20	−40	−59	−79	−99	−120	−140	−159	−179	−199	−220	−240	−260	−280	−300	−321	−341	−362	−382	−402	0·50
·52	0	−19	−37	−56	−74	−93	−113	−131	−150	−168	−187	−207	−225	−244	−263	−283	−301	−320	−339	−358	−377	·52
·54	0	−17	−35	−52	−69	−87	−104	−123	−140	−157	−175	−193	−210	−228	−246	−264	−281	−299	−317	−335	−353	·54
·56	0	−16	−32	−48	−64	−81	−97	−114	−130	−146	−162	−179	−195	−212	−229	−245	−261	−278	−294	−311	−328	·56
·58	0	−15	−30	−45	−59	−74	−89	−105	−120	−135	−150	−164	−180	−195	−210	−226	−241	−256	−271	−286	−302	·58
·60	0	−13	−27	−41	−54	−68	−81	−96	−109	−123	−137	−150	−165	−178	−192	−207	−220	−234	−248	−262	−276	·60
0·62	0	−12	−25	−37	−49	−61	−74	−87	−99	−111	−124	−136	−149	−161	−174	−187	−199	−211	−225	−237	−249	0·62
·64	0	−11	−22	−33	−44	−55	−66	−77	−88	−99	−110	−121	−133	−144	−155	−166	−178	−189	−200	−212	−223	·64
·66	0	−10	−19	−29	−38	−48	−57	−67	−77	−87	−97	−106	−116	−126	−136	−146	−156	−166	−175	−186	−195	·66
·68	0	−8	−16	−25	−33	−41	−49	−57	−66	−75	−83	−91	−99	−108	−117	−125	−133	−142	−150	−158	−168	·68
·70	0	−7	−14	−20	−27	−34	−41	−47	−55	−62	−69	−75	−82	−90	−97	−104	−110	−118	−125	−132	−139	·70
0·72	0	−5	−11	−16	−21	−27	−32	−37	−44	−49	−54	−60	−65	−70	−76	−82	−87	−92	−99	−104	−109	0·72
·74	0	−4	−8	−12	−15	−19	−23	−27	−31	−36	−39	−43	−47	−51	−56	−60	−63	−67	−71	−76	−80	·74
·76	0	−2	−5	−7	−9	−12	−14	−16	−19	−22	−24	−27	−29	−31	−33	−37	−39	−41	−44	−46	−49	·76
·78	0	−1	−2	−2	−3	−4	−5	−5	−6	−7	−9	−9	−10	−11	−12	−12	−14	−15	−16	−16	−17	·78
·80	0	+1	+2	+3	+3	+4	+5	+6	+7	+8	+7	+8	+9	+10	+11	+12	+13	+12	+13	+14	+15	·80
0·82	0	+2	+5	+7	+10	+12	+15	+17	+20	+22	+25	+26	+29	+32	+34	+36	+39	+41	+43	+45	+48	0·82
·84	0	+4	+8	+13	+17	+21	+25	+29	+34	+38	+42	+46	+49	+53	+58	+62	+66	+70	+74	+79	+83	·84
·86	0	+6	+12	+18	+24	+30	+36	+42	+48	+54	+59	+66	+72	+77	+82	+88	+94	+100	+106	+112	+118	·86
·88	0	+8	+16	+23	+31	+39	+47	+54	+62	+70	+78	+85	+93	+101	+109	+116	+124	+132	+139	+147	+154	·88
·90	0	+10	+19	+29	+39	+48	+58	+67	+77	+87	+96	+106	+116	+125	+135	+145	+154	+164	+174	+183	+193	·90
0·92	0	+12	+23	+35	+46	+58	+70	+81	+93	+104	+116	+128	+139	+151	+163	+174	+186	+197	+209	+221	+232	0·92
·94	0	+14	+27	+41	+55	+68	+82	+95	+109	+123	+137	+150	+164	+178	+191	+206	+219	+233	+247	+260	+274	·94
0·96	0	+16	+32	+47	+63	+79	+95	+111	+126	+142	+158	+174	+190	+206	+222	+238	+254	+269	+286	+301	+318	0·96

XLII *continued*

Var. / Lat.	+·0 080	+·0 084	+·0 088	+·0 092	+·0 096	+·0 100	+·0 104	+·0 108	+·0 112	+·0 116	+·0 120	+·0 124	+·0 128	+·0 132	+·0 136	+·0 140	+·0 144	+·0 148	+·0 152	+·0 156	+·0 160	Var. / Lat.
0·50	−402	−422	−443	−463	−484	−504	−525	−545	−566	−587	−607	−628	−648	−669	−690	−711	−731	−752	−773	−794	−816	0·50
·52	−377	−397	−416	−435	−454	−474	−493	−512	−532	−551	−570	−590	−609	−629	−649	−668	−688	−707	−727	−747	−766	·52
·54	−353	−371	−388	−407	−425	−442	−461	−479	−497	−515	−533	−552	−569	−587	−606	−624	−643	−661	−679	−698	−716	·54
·56	−328	−345	−361	−378	−394	−411	−428	−444	−462	−479	−495	−512	−529	−546	−563	−579	−597	−614	−631	−648	−665	·56
·58	−302	−317	−333	−348	−364	−380	−395	−410	−426	−441	−457	−473	−488	−503	−519	−535	−551	−567	−583	−599	−613	·58
·60	−276	−290	−305	−318	−333	−346	−361	−374	−389	−404	−418	−432	−446	−461	−474	−489	−504	−518	−533	−547	−562	·60
0·62	−249	−262	−275	−288	−300	−314	−327	−339	−352	−365	−378	−391	−403	−417	−430	−443	−456	−469	−482	−495	−508	0·62
·64	−223	−234	−245	−257	−268	−280	−291	−303	−314	−326	−338	−349	−361	−372	−384	−395	−407	−419	−430	−442	−454	·64
·66	−195	−205	−216	−225	−236	−245	−256	−265	−276	−286	−296	−307	−316	−327	−337	−347	−358	−368	−379	−388	−399	·66
·68	−168	−176	−185	−193	−201	−211	−219	−228	−236	−245	−253	−263	−272	−280	−289	−298	−306	−316	−325	−333	−342	·68
·70	−139	−146	−153	−161	−167	−175	−182	−189	−197	−204	−211	−219	−226	−233	−240	−248	−256	−262	−270	−278	−285	·70
0·72	−109	−116	−121	−126	−133	−138	−144	−150	−156	−161	−167	−173	−179	−185	−191	−196	−203	−208	−214	−220	−226	0·72
·74	−80	−84	−88	−92	−96	−101	−105	−110	−114	−117	−122	−126	−131	−135	−140	−143	−148	−153	−157	−162	−166	·74
·76	−49	−52	−54	−57	−60	−62	−65	−68	−70	−73	−75	−79	−81	−83	−87	−89	−92	−95	−98	−100	−104	·76
·78	−17	−19	−20	−20	−21	−23	−24	−25	−26	−27	−28	−30	−30	−32	−33	−34	−35	−36	−38	−39	−40	·78
·80	+15	+16	+16	+16	+17	+18	+18	+19	+20	+19	+20	+21	+21	+22	+23	+23	+23	+24	+24	+25	+25	·80
0·82	+48	+50	+53	+55	+57	+59	+62	+64	+66	+68	+71	+73	+75	+77	+80	+82	+84	+86	+89	+90	+93	0·82
·84	+83	+86	+90	+94	+99	+103	+107	+110	+114	+119	+123	+126	+130	+134	+139	+142	+146	+150	+154	+157	+162	·84
·86	+118	+124	+130	+136	+142	+147	+153	+159	+165	+170	+176	+182	+187	+193	+199	+205	+211	+216	+222	+228	+234	·86
·88	+154	+162	+170	+178	+185	+193	+201	+209	+216	+224	+232	+239	+246	+254	+262	+270	+278	+285	+293	+301	+308	·88
·90	+193	+203	+212	+222	+232	+241	+251	+260	+270	+280	+289	+299	+309	+318	+328	+338	+347	+357	+367	+376	+385	·90
0·92	+232	+244	+255	+268	+280	+291	+303	+315	+326	+338	+349	+361	+373	+384	+396	+407	+419	+431	+442	+454	+466	0·92
·94	+274	+288	+301	+315	+329	+343	+357	+371	+384	+398	+412	+425	+439	+454	+467	+481	+495	+508	+522	+537	+550	·94
0·96	+318	+334	+349	+365	+381	+398	+413	+429	+445	+461	+478	+493	+509	+525	+542	+558	+573	+590	+606	+622	+638	0·96

This Table is complementary to Table XLVI and supplies a correction to Latitude.

The unit equals 0·00001.

Tables of the Phenomena

XLII *continued* — Correction of High Latitudes for Variation

Lat \ Var	−0 160	−0 156	−0 152	−0 148	−0 144	−0 140	−0 136	−0 132	−0 128	−0 124	−0 120	−0 116	−0 112	−0 108	−0 104	−0 100	−0 096	−0 092	−0 088	−0 084	−0 080	Var / Lat
2 50	−77	75	−733	−714	−695	−677	−658	−639	−6 0	−6 0	−581	−563	−544	−525	−505	−486	−468	−449	−429	−410	−39	2 50
48	−7	−7 5	−687	669	−65	−634	−617	−599	−581	−564	546	5 9	−51	−49	−475	−456	−438	−4 1	−40	−385	−367	48
46	−674	−658	−641	6 5	−6 9	−59	−576	−559	−543	−5 6	−5 9	−493	−477	−459	−443	−4 6	−409	−393	−376	−359	−343	46
44	−6 5	−610	−595	−580	565	−549	−533	518	−503	−488	−473	−457	−44	−4 6	−41	−395	−380	−364	−349	−333	−318	44
42	−575	−561	−54/	−533	−519	505	−491	−477	−464	−449	−435	−4 1	−406	−39	−379	−364	−350	−336	−3 1	−307	−29	42
40	−5 4	−51	−499	−486	−474	461	−448	−435	−4	−410	−396	−384	−371	−358	−345	−332	−319	−3 6	−293	− 80	266	40
2 38	47	−461	−45	−439	−4 6	415	−4 4	−393	−381	−369	−358	−347	334	−3 3	−311	−3 0	− 88	76	− 65	−252	− 41	2 38
36	−4	−41	−400	−389	−379	−369	−360	−350	−339	3 9	−318	−308	− 98	− 87	−277	− 66	− 56	− 45	− 35	− 24	− 15	36
34	−367	−358	−349	−340	−332	−3 3	−313	−3 5	−296	− 87	− 78	− 7	− 6	− 51	− 4	233	− 4	− 15	−2 6	−197	−187	34
32	−31	−3 5	− 97	− 9	− 82	− 74	− 67	− 60	− 52	− 45	− 37	2 9	−	−214	−207	−199	−191	−183	−175	−168	−16	32
30	− 57	− 50	− 44	− 38	− 3	− 6	− 20	−213	− 08	−2 1	−195	−188	−183	−177	−17	−163	−157	−151	−145	−138	−131	30
2 28	−200	−194	−19	−186	−181	−176	−171	−167	−161	−157	−153	147	−142	−138	−132	−1 8	−1 3	−118	−113	−108	−103	2 28
26	−14	−138	−135	−13	−1 8	−1 5	−1 2	−119	−115	−11	−108	−105	−10	− 98	− 95	− 91	− 88	− 84	− 80	− 78	− 74	26
24	− 8	− 80	78	− 77	− 74	− 73	− 71	− 69	− 67	− 65	− 63	− 61	− 60	− 58	− 55	− 54	− 5	− 49	− 48	− 46	− 43	24
22	− 0	− 1	− 0	− 0	− 19	− 0	− 19	− 18	− 18	− 18	− 18	− 17	− 16	− 17	− 16	− 15	− 15	− 14	− 14	− 13	− 13	22
20	+ 43	+ 41	+ 4	+ 38	+ 38	+ 37	+ 35	+ 34	+ 33	+ 31	+ 30	+ 29	+ 8	+ 7	+ 26	+ 24	+ 23	+	+ 2	+ 20	+ 19	20
2 18	+1 7	+104	+1	+ 98	+ 96	+ 9	+ 90	+ 87	+ 85	+ 81	+ 79	+ 76	+ 74	+ 7	+ 68	+ 65	+ 63	+ 59	+ 57	+ 54	+ 52	2 18
16	+174	+169	+164	+160	+156	+15	+147	+14	+138	+134	+12	+1 5	+1 0	+116	+111	+107	+103	+ 98	+ 94	+ 90	+ 85	16
14	+ 4	+ 36	+ 3	+ 4	+ 17	+ 11	+ 05	+199	+1 3	+186	+180	+174	+169	+163	+157	+151	+144	+138	+13	+126	+120	14
12	+314	+3 5	+ 97	+ 89	+ 8	+ 74	+ 66	+ 58	+250	+243	+234	+226	+ 18	+211	+203	+195	+187	+180	+17	+164	+156	12
10	+387	+376	+367	+357	+347	+338	+3 8	+318	+309	+299	+ 89	+ 80	+270	+ 60	+251	+241	+232	+22	+212	+203	+193	10
2 08	+462	+452	+44	+4 9	+417	+405	+394	+382	+371	+359	+347	+336	+324	+313	+301	+289	+ 78	+266	+255	+244	+232	2 08
06	+54	+5 9	+516	+502	+489	+475	+461	+448	+435	+4 1	+408	+394	+380	+367	+353	+339	+3 7	+313	+299	+286	+272	06
2 04	+6 6	+610	+594	+578	+563	+548	+53	+517	+501	+485	+470	+455	+439	+4 3	+407	+392	+377	+361	+345	+330	+314	2 04

XLII *continued*

Lat \ Var	−0 080	−0 076	−0 072	−0 068	−0 064	−0 060	−0 056	−0 052	−0 048	−0 044	−0 040	−0 036	−0 032	−0 028	−0 024	−0 020	−0 016	−0 012	−0 008	−0 004	0 000	Var / Lat
2 50	−39	37	−352	−333	−313	− 94	− 74	− 56	− 36	−216	−197	−177	−157	−138	−118	− 99	− 79	− 59	− 40	− 20	0	2 50
48	−36/	−348	−331	31	− 95	75	−257	− 40	− 1	−203	−185	−166	−148	−129	−111	− 93	− 74	− 56	− 37	− 19	0	48
46	−343	−3 5	−3 9	− 91	− 75	− 58	− 40	− 24	− 06	−189	−173	−155	−138	−121	−104	− 87	− 69	− 52	− 35	− 17	0	46
44	−318	−301	−286	− 7	− 55	− 39	− 3	−2 8	−191	−175	−160	−144	−1 8	−112	− 97	− 81	− 64	− 48	− 32	− 16	0	44
42	− 9	−278	− 63	− 50	− 35	− 0	− 06	−191	−176	−162	−148	−133	−118	−103	− 89	− 74	− 59	− 45	− 30	− 15	0	42
40	− 66	54	−24	− 8	−214	− 01	−188	−174	−161	−148	−135	−1 1	−107	− 94	− 81	− 68	− 54	− 41	− 27	− 13	0	40
2 38	−241	− 9	− 17	−205	−193	−181	−170	−157	−145	−134	−12	−109	− 97	− 85	− 74	− 61	− 49	− 37	− 25	− 12	0	2 38
36	−215	−2 4	−194	−183	−17	−16	−151	−140	−129	−119	−1 8	− 97	− 86	− 75	− 66	− 55	− 44	− 33	− 22	− 11	0	36
34	−187	−178	−169	−160	−150	−142	−13	12	−114	−1 4	− 95	− 85	− 75	− 67	− 57	− 48	− 38	− 9	− 19	− 10	0	34
32	−160	−152	−144	−136	−1 9	−1 1	−113	−104	− 97	− 89	− 81	− 73	− 64	− 57	− 49	41	− 33	− 25	− 16	− 8	0	32
30	131	−1 6	−119	−112	−106	−100	− 93	− 86	− 80	− 73	− 67	− 60	− 53	− 47	− 41	− 34	− 27	− 20	− 14	− 7	0	30
2 28	−103	− 98	− 93	− 88	− 83	− 78	− 72	− 68	− 63	− 58	− 52	− 47	− 4	− 37	− 32	− 27	− 21	− 16	− 11	− 5		2 28
26	− 74	− 70	− 67	− 63	− 59	56	− 5	− 49	− 45	− 41	− 37	− 34	− 31	− 27	− 3	− 19	− 15	− 12	− 8	− 4	0	26
24	− 43	− 42	− 40	− 37	− 35	− 33	− 31	− 29	− 7	− 5	−	− 20	− 19	− 16	− 14	− 1	− 9	− 7	− 5	− 2	0	24
22	− 13	− 1	− 1	11	− 10	−	− 10	− 9	− 8	− 7	− 7	− 7	− 6	− 5	− 5	4	− 3	−	− 2	− 1	0	22
20	+ 19	+ 18	+ 17	+ 16	+ 15	+ 14	+ 13	+ 11	+ 11	+ 10	+ 9	+ 8	+ 7	+ 6	+ 5	+ 4	+ 3	+ 3	+ 2	+ 1	0	20
2 18	+ 52	+ 49	+ 47	+ 43	+ 41	+ 38	+ 36	+ 34	+ 31	+ 28	+ 25	+ 2	+ 0	+ 17	+ 15	+ 1	+ 10	+ 7	+ 5	+	0	2 18
16	+ 85	+ 81	+ 76	+ 72	+ 68	+ 64	+ 60	+ 55	+ 51	+ 46	+ 42	+ 38	+ 34	+ 29	+ 5	+ 1	+ 17	+ 13	+ 8	+ 4	0	16
14	+1 0	+114	+108	+10	+ 96	+ 90	+ 84	+ 77	+ 7	+ 66	+ 59	+ 54	+ 48	+ 4	+ 36	+ 30	+ 24	+ 18	+ 12	+ 6	0	14
12	+156	+149	+141	+132	+124	+116	+109	+1 1	+ 9	+ 85	+ 78	+ 70	+ 6	+ 54	+ 47	+ 39	+ 31	+ 3	+ 16	+ 8	0	12
10	+193	+183	+174	+164	+154	+145	+135	+1 5	+116	+106	+ 96	+ 87	+ 77	+ 67	+ 58	+ 48	+ 39	+ 9	+ 19	+ 10	0	10
2 08	+23	+ 1	+209	+197	+186	+174	+163	+151	+139	+1 8	+116	+1 4	+ 93	+ 81	+ 7	+ 58	+ 46	+ 35	+ 3	+ 12	0	2 08
06	+ 72	+258	+ 45	+ 31	+ 17	+ 04	+191	+178	+164	+15	+137	+1 3	+109	+ 95	+ 82	+ 68	+ 55	+ 41	+ 27	+ 14	0	06
2 04	+314	+299	+ 8	+ 67	+252	+236	+ 0	+204	+188	+174	+158	+142	+1 6	+111	+ 95	+ 79	+ 63	+ 47	+ 3	+ 16	0	2 04

Th T bl i mpl m t y t T bl XLVI l ppl rr ti t L tit d Th it q l oooo

SATELLITE IV

Tables of the Phenomena

XLII *continued* — **Correction of High Latitude for Variation**

Var. / Lat.	·0 000	+·0 004	+·0 008	+·0 012	+·0 016	+·0 020	+·0 024	+·0 028	+·0 032	+·0 036	+·0 040	+·0 044	+·0 048	+·0 052	+·0 056	+·0 060	+·0 064	+·0 068	+·0 072	+·0 076	+·0 080	Var. / Lat.
2·50	0	+ 20	+ 40	+ 59	+ 79	+ 99	+120	+140	+159	+179	+199	+220	+240	+260	+280	+300	+321	+341	+362	+382	+402	2·50
·48	0	+ 19	+ 37	+ 56	+ 74	+ 93	+113	+131	+150	+168	+187	+207	+225	+244	+263	+283	+301	+320	+339	+358	+377	·48
·46	0	+ 17	+ 35	+ 52	+ 69	+ 87	+104	+123	+140	+157	+175	+193	+210	+228	+246	+264	+281	+299	+317	+335	+353	·46
·44	0	+ 16	+ 32	+ 48	+ 64	+ 81	+ 97	+114	+130	+146	+162	+179	+195	+212	+229	+245	+261	+278	+294	+311	+328	·44
·42	0	+ 15	+ 30	+ 45	+ 59	+ 74	+ 89	+105	+120	+135	+150	+164	+180	+195	+210	+226	+241	+256	+271	+286	+302	·42
·40	0	+ 13	+ 27	+ 41	+ 54	+ 68	+ 81	+ 96	+109	+123	+137	+150	+165	+178	+192	+207	+220	+234	+248	+262	+276	·40
2·38	0	+ 12	+ 25	+ 37	+ 49	+ 61	+ 74	+ 87	+ 99	+111	+124	+136	+149	+161	+174	+187	+199	+211	+225	+237	+249	2·38
·36	0	+ 11	+ 22	+ 33	+ 44	+ 55	+ 66	+ 77	+ 88	+ 99	+110	+121	+133	+144	+155	+166	+178	+189	+200	+212	+223	·36
·34	0	+ 10	+ 19	+ 29	+ 38	+ 48	+ 57	+ 67	+ 77	+ 87	+ 97	+106	+116	+126	+136	+146	+156	+166	+175	+186	+195	·34
·32	0	+ 8	+ 16	+ 25	+ 33	+ 41	+ 49	+ 57	+ 66	+ 75	+ 83	+ 91	+ 99	+108	+117	+125	+133	+142	+150	+158	+168	·32
·30	0	+ 7	+ 14	+ 20	+ 27	+ 34	+ 41	+ 47	+ 55	+ 62	+ 69	+ 75	+ 82	+ 90	+ 97	+104	+110	+118	+125	+132	+139	·30
2·28	0	+ 5	+ 11	+ 16	+ 21	+ 27	+ 32	+ 37	+ 44	+ 49	+ 54	+ 60	+ 65	+ 70	+ 76	+ 82	+ 87	+ 92	+ 99	+104	+109	2·28
·26	0	+ 4	+ 8	+ 12	+ 15	+ 19	+ 23	+ 27	+ 31	+ 36	+ 39	+ 43	+ 47	+ 51	+ 56	+ 60	+ 63	+ 67	+ 71	+ 76	+ 80	·26
·24	0	+ 2	+ 5	+ 7	+ 9	+ 12	+ 14	+ 16	+ 19	+ 22	+ 24	+ 27	+ 29	+ 31	+ 33	+ 37	+ 39	+ 41	+ 44	+ 46	+ 49	·24
·22	0	+ 1	+ 2	+ 2	+ 3	+ 4	+ 5	+ 5	+ 6	+ 7	+ 9	+ 9	+ 10	+ 11	+ 12	+ 12	+ 14	+ 15	+ 16	+ 16	+ 17	·22
·20	0	− 1	− 2	− 3	− 3	− 4	− 5	− 6	− 7	− 8	− 7	− 8	− 9	− 10	− 11	− 12	− 13	− 12	− 13	− 14	− 15	·20
2·18	0	− 2	− 5	− 7	− 10	− 12	− 15	− 17	− 20	− 22	− 25	− 26	− 29	− 32	− 34	− 36	− 39	− 41	− 43	− 45	− 48	2·18
·16	0	− 4	− 8	− 13	− 17	− 21	− 25	− 29	− 34	− 38	− 42	− 46	− 49	− 53	− 58	− 62	− 66	− 70	− 74	− 79	− 83	·16
·14	0	− 6	− 12	− 18	− 24	− 30	− 36	− 42	− 48	− 54	− 59	− 66	− 72	− 77	− 82	− 88	− 94	−100	−106	−112	−118	·14
·12	0	− 8	− 16	− 23	− 31	− 39	− 47	− 54	− 62	− 70	− 78	− 85	− 93	−101	−109	−116	−124	−132	−139	−147	−154	·12
·10	0	− 10	− 19	− 29	− 39	− 48	− 58	− 67	− 77	− 87	− 96	−106	−116	−125	−135	−145	−154	−164	−174	−183	−193	·10
2·08	0	− 12	− 23	− 35	− 46	− 58	− 70	− 81	− 93	−104	−116	−128	−139	−151	−163	−174	−186	−197	−209	−221	−232	2·08
·06	0	− 14	− 27	− 41	− 55	− 68	− 82	− 95	−109	−123	−137	−150	−164	−178	−191	−206	−219	−233	−247	−260	−274	·06
2·04	0	− 16	− 32	− 47	− 63	− 79	− 95	−111	−126	−142	−158	−174	−190	−206	−222	−238	−254	−269	−286	−301	−318	2·04

XLII *continued*

Var. / Lat.	+·0 080	+·0 084	+·0 088	+·0 092	+·0 096	+·0 100	+·0 104	+·0 108	+·0 112	+·0 116	+·0 120	+·0 124	+·0 128	+·0 132	+·0 136	+·0 140	+·0 144	+·0 148	+·0 152	+·0 156	+·0 160	Var. / Lat.
2·50	+402	+422	+443	+463	+484	+504	+525	+545	+566	+587	+607	+628	+648	+669	+690	+711	+731	+752	+773	+794	+816	2·50
·48	+377	+397	+416	+435	+454	+474	+493	+512	+532	+551	+570	+590	+609	+629	+649	+668	+688	+707	+727	+747	+766	·48
·46	+353	+371	+388	+407	+425	+442	+461	+479	+497	+515	+533	+552	+569	+587	+606	+624	+643	+661	+679	+698	+716	·46
·44	+328	+345	+361	+378	+394	+411	+428	+444	+462	+479	+495	+512	+529	+546	+563	+579	+597	+614	+631	+648	+665	·44
·42	+302	+317	+333	+348	+364	+380	+395	+410	+426	+441	+457	+473	+488	+503	+519	+535	+551	+567	+583	+599	+613	·42
·40	+276	+290	+305	+318	+333	+346	+361	+374	+389	+404	+418	+432	+446	+461	+474	+489	+504	+518	+533	+547	+562	·40
2·38	+249	+262	+275	+288	+300	+314	+327	+339	+352	+365	+378	+391	+403	+417	+430	+443	+456	+469	+482	+495	+508	2·38
·36	+223	+234	+245	+257	+268	+280	+291	+303	+314	+326	+338	+349	+361	+372	+384	+395	+407	+419	+430	+442	+454	·36
·34	+195	+205	+216	+225	+236	+245	+256	+265	+276	+286	+296	+307	+316	+327	+337	+347	+358	+368	+379	+388	+399	·34
·32	+168	+176	+185	+193	+201	+211	+219	+228	+236	+245	+253	+263	+272	+280	+289	+298	+306	+316	+325	+333	+342	·32
·30	+139	+146	+153	+161	+167	+175	+182	+189	+197	+204	+211	+219	+226	+233	+240	+248	+256	+262	+270	+278	+285	·30
2·28	+109	+116	+121	+126	+133	+138	+144	+150	+156	+161	+167	+173	+179	+185	+191	+196	+203	+208	+214	+220	+226	2·28
·26	+ 80	+ 84	+ 88	+ 92	+ 96	+101	+105	+110	+114	+117	+122	+126	+131	+135	+140	+143	+148	+153	+157	+162	+166	·26
·24	+ 49	+ 52	+ 54	+ 57	+ 60	+ 62	+ 65	+ 68	+ 70	+ 73	+ 75	+ 79	+ 81	+ 83	+ 87	+ 89	+ 92	+ 95	+ 98	+100	+104	·24
·22	+ 17	+ 19	+ 20	+ 20	+ 21	+ 23	+ 24	+ 25	+ 26	+ 27	+ 28	+ 30	+ 30	+ 32	+ 33	+ 34	+ 35	+ 36	+ 38	+ 39	+ 40	·22
·20	− 15	− 16	− 16	− 16	− 17	− 18	− 18	− 19	− 20	− 19	− 20	− 21	− 21	− 22	− 23	− 23	− 23	− 24	− 24	− 25	− 25	·20
2·18	− 48	− 50	− 53	− 55	− 57	− 59	− 62	− 64	− 66	− 68	− 71	− 73	− 75	− 77	− 80	− 82	− 84	− 86	− 89	− 90	− 93	2·18
·16	− 83	− 86	− 90	− 94	− 99	−103	−107	−110	−114	−119	−123	−126	−130	−134	−139	−142	−146	−150	−154	−157	−162	·16
·14	−118	−124	−130	−136	−142	−147	−153	−159	−165	−170	−176	−182	−187	−193	−199	−205	−211	−216	−222	−228	−234	·14
·12	−154	−162	−170	−178	−185	−193	−201	−209	−216	−224	−232	−239	−246	−254	−262	−270	−278	−285	−293	−301	−308	·12
·10	−193	−203	−212	−222	−232	−241	−251	−260	−270	−280	−289	−299	−309	−318	−328	−338	−347	−357	−367	−376	−385	·10
2·08	−232	−244	−255	−268	−280	−291	−303	−315	−326	−338	−349	−361	−373	−384	−396	−407	−419	−431	−442	−454	−466	2·08
·06	−274	−288	−301	−315	−329	−343	−357	−371	−384	−398	−412	−425	−439	−454	−467	−481	−495	−508	−522	−537	−550	·06
2·04	−318	−334	−349	−365	−381	−398	−413	−429	−445	−461	−478	−493	−509	−525	−542	−558	−573	−590	−606	−622	−638	2·04

This Table is complementary to Table XLVI and supplies a correction to Latitude. The unit equals 0·00001.

SATELLITE IV

Tables of the Phenomena

XLIII **Correction of High Latitudes** **Ecl, Oc**

J \ M	0d	1d	2d	3d	4d	5d	6l	7d	8d	9d	10d	11d	12d	13d	14d	15d	16d	17l	18l	19d	20d
d																					
08			−44	−44	−43	−40	−37			*		*		*		*	*		*	−45	−44
10	−48	−51	−52	−52	−50	−47	−43	−38	−3	*	*		*	*		*	*	−49	−52	−52	−51
12	−55	−58	−59	−58	−56	−52	−47	−4	−35	−31	−6	*	*		*	−45	−52	−55	−58	−59	−57
14	−60	−6	−63	−62	−59	−55	−50	−45	−39	−33	−9	−8	−30	−35	−43	−50	−56	−61	−63	−63	−61
16	−63	−66	−66	−65	−6	−58	−53	−47	−41	−36	−32	31	−34	−39	−46	−54	−60	−64	−66	−66	−64
18	−65	−68	−68	−67	−63	−59	−54	−48	4	−37	−33	−33	−36	−41	−48	−56	−6	−66	−68	−68	−66
20	−66	−69	−69	−67	−64	−59	−54	−48	−4	−37	−34	−34	−37	−42	−49	−57	−63	−67	−69	−68	−66
22	−65	−67	−68	*		*	−5	−46	−41	−36	−33	−33	−36	−42	−49	−56	−62	−66	−67	−67	*
24	−63						*	*	−40	−35	−33	−3	−35	−41	−48	−54	−60	−64	*	*	*
26	*				*	*	*	*		−33	−31	−31	−33	−39	−45	−51	−57	*	*	*	*
28	*				*		*	*	*		−9	−9	−31	−36	−42	−48	*	*		*	*
56					*	*		*		*	−51	−45	−38	−33	−31	−31	*	*	*		*
58	*			*		*		*		−58	−53	−46	−40	−34	−3	−32	−34	*	*	*	*
60	−38	−44				*		*	−66	−61	−55	−48	−42	−36	−33	−33	−35	−40	−45	*	*
62	−39	−45	−51	*		*	*	−68	−65	−6	−56	−49	−4	−37	−34	−34	−36	−41	−47	*	*
64	−40	−46	−5	−57	62	−66	−68	−69	−67	−63	−57	−50	−42	−37	−34	−34	−37	−42	−47	−54	−59
66	−40	−46	−5	−57	−6	−66	−68	−68	−66	−62	−56	−48	−41	−35	−33	−33	−37	−4	−48	−54	−59
68	−39	−45	−51	−56	−60	−64	−66	−66	−63	−59	−53	−46	−38	−33	−31	−32	−35	−41	−46	−52	−58
70	−37	−42	−48	−53	−57	−60	−62	−62	−60	−56	−50	−42	−35	−30	−28	−29	−33	−38	−44	−50	−54
72	−33	−39	−44	−49	−53	−55	−57	−56	−54	−50	−44	*	*	*		−25	−29	−35	−41	−46	−50
74	−9	−35	−4	−44	−47	−49	−50	−49	−48	*		*	*	*	*		*	31	−37	−41	−45
76		*	−34	−38	−41	−42	−4	−42	*		*	*	*		*	*	*	*	*	−36	−39
92			*	*	*		*	*		+45	+47	+47	+46	+44	+41	+36	+31	*	*	*	*
94	+31	+5			*	*		*	+49	+52	+54	+54	+52	+50	+46	+41	+35	+29	+24	*	*
96	+34	+9	+6	+25	+8	+26	+41	+48	+54	+57	+59	+59	+57	+54	+49	+44	+38	+33	+8	+5	+25
98	+38	+3	+30	+9	+33	+39	+46	+53	+59	+63	+64	+63	+61	+58	+53	+48	+4	+36	+31	+29	+30
100	+40	+35	+32	+33	+36	+43	+50	+57	+63	+66	+67	+67	+64	+60	+55	+50	+44	+38	+34	+32	+33
102	+41	+39	+36	+36	+39	+45	+52	+58	+64	+67	+68	+68	+66	+62	+58	+5	+47	+41	+38	+36	+37
104	+40	+36	+34	+35	+39	+45	+52	+59	+64	+68	+69	+68	+65	+61	+55	+49	+44	+38	+35	+34	+36
106	+39	+35	+33	+34	+38	+44	+51	+58	+63	+66	+67		*	*	*	+48	+43	+38	+34	+33	+35
108	+38	+33	+32	+33	+37	+4	+49	+56	+61	+64	*	*	*	*	*	*	+41	+36	+33	+32	+34
110	*	+31	+30	+31	+34	+40	+47	+53	*	*	*		*		*	*	*	+34	+31	+30	+32
112			+8	+9	+32	+37	+43	*		*	*	*	*	*	*	*	*	*	+29	+28	+30
138			+45	+39	+33	+29	+28	*	*		*		*	*	*		*	*		+43	+37
140		+54	+48	+42	+36	+3	+30	+31	*	*	*			*		*	*		+52	+46	+40
142	+62	+57	+51	+44	+38	+34	+32	+32	+35	+40	*			*		*		+61	+56	+49	+4
144	+64	+60	+53	+46	+40	+35	+3	+34	+37	+42	+47	*	*		*	+67	+66	+63	+58	+51	+44
146	+65	+61	+54	+47	+40	+35	+33	+34	+38	+43	+49	+55	+60	+65	+67	+69	+68	+64	+59	+52	+45
148	+66	+61	+54	+47	+40	+35	+34	+35	+38	+44	+50	+56	+61	+65	+68	+69	+68	+64	+59	+5	+44
150	+64	+59	+53	+45	+38	+33	+3	+33	+38	+43	+49	+55	+60	+64	+6	+68	+66	+63	+57	+50	+43
152	+6	+57	+5	+43	+35	+31	+30	+32	+36	+4	+48	+53	+58	+62	+64	+65	+64	+60	+55	+48	+40
154	+57	+5	+45	+38	+31	+27	+27	+29	+34	+40	+46	+51	+55	+59	+60	+61	+6	+56	+50	+43	+36
156	+51	+46		*		*		+25	+31	+36	+42	+47	+51	+53	+55	+55	+53	+50	*	*	*
158	*			*	*	*		*	*	+32	+37	+41	+45	+47	+48	+48	+46	*	*	*	*
176			49	−48	−49	−44	−40	*	*			*	*	*	*		*		*	−49	−48
178	−52	−55	−56	−55	−53	−50	−45	−40	−34	*		*	*	*				−52	−55	−56	−54
180	−58	−61	−62	−59	−58	−53	−48	−44	−37	−32	−28		*	*		−48	−54	−58	−61	−61	−63

N t th b ppl d Th it q l ooo Thi T bl i mplim t y to T bl XLVII Wh th L tit d d i d f m T bl
XXX—XXXVII l b tw d 95 b tw 5 d it ppli q t whi h m t b ppli d to it b f it i d gum t f T bl XLV

SATELLITE IV

Tables of the Phenomena

XLIV Correction of High Latitudes Sh., Tr.

J \ M	0d	1d	2d	3d	4d	5d	6d	7d	8d	9d	10d	11d	12d	13d	14d	15d	16d	17d	18d	19d	20d
d																					
0·8	*	*	+15	+7	0	+7	+13	*	*	*	*	*	*	*	*	*	*	*	*	+11	+6
1·0	+9	−3	−11	−16	−17	−15	−9	0	+12	*	*	*	*	*	*	*	*	+5	−6	−13	−16
1·2	−15	−25	−31	−34	−34	−31	−24	−16	−5	+5	+16	*	*	*	*	+6	−8	−18	−27	−33	−34
1·4	−33	−40	−46	−47	−45	−41	−36	−28	−19	−8	0	+6	+8	+4	−5	−15	−26	−36	−43	−46	−47
1·6	−46	−52	−56	−57	−55	−51	−45	−37	−28	−20	−12	−8	−8	−12	−20	−30	−40	−48	−54	−57	−57
1·8	−55	−61	−64	−64	−61	−57	−51	−43	−35	−27	−21	−18	−19	−22	−32	−41	−50	−57	−62	−64	−64
2·0	−61	−67	−69	−68	−65	−60	−54	−47	−39	−32	−27	−25	−26	−31	−40	−48	−56	−63	−67	−68	−67
2·2	−64	−68	−70	*	*	*	−54	−47	−41	−34	−29	−28	−30	−36	−43	−52	−60	−65	−68	−70	*
2·4	−64	*	*	*	*	*	*	*	−41	−35	−32	−30	−32	−38	−46	−52	−60	−66	*	*	*
2·6	*	*	*	*	*	*	*	*	*	−34	−31	−31	−32	−38	−44	−51	−58	*	*	*	*
2·8	*	*	*	*	*	*	*	*	*	*	−30	−30	−31	−36	−43	−49	*	*	*	*	*
5·6	*	*	*	*	*	*	*	*	*	*	−52	−45	−38	−33	−31	−32	*	*	*	*	*
5·8	*	*	*	*	*	*	*	*	*	−59	−53	−45	−39	−33	−31	−32	−35	*	*	*	*
6·0	−38	−46	*	*	*	*	*	*	−67	−60	−53	−45	−38	−32	−30	−31	−35	−41	−47	*	*
6·2	−41	−45	−52	*	*	*	*	−69	−64	−59	−51	−42	−35	−30	−28	−29	−33	−40	−47	*	*
6·4	−33	−43	−51	−57	−62	−66	−67	−66	−62	−55	−47	−38	−29	−25	−23	−25	−31	−38	−45	−54	−60
6·6	−31	−39	−47	−53	−60	−62	−63	−60	−55	−48	−39	−29	−21	−16	−16	−19	−26	−33	−42	−50	−55
6·8	−23	−32	−41	−47	−52	−55	−55	−52	−45	−44	−27	−17	−8	−4	−7	−10	−17	−26	−34	−42	−50
7·0	−13	−22	−31	−37	−42	−44	−43	−37	−32	−22	−11	0	+8	+12	+10	+4	−6	−15	−25	−33	−39
7·2	+3	−9	−17	−24	−29	−29	−28	−21	−13	−1	+12	*	*	*	*	+22	+11	−1	−12	−20	−24
7·4	+23	+9	−1	−7	−11	−11	−7	−1	+12	*	*	*	*	*	*	*	*	+18	+5	−3	−9
7·6	*	*	+23	+15	+11	+14	+20	+15	*	*	*	*	*	*	*	*	*	*	*	+19	+14
9·2	*	*	*	*	*	*	*	*	*	−22	−10	−2	+1	+1	−3	−13	−24	*	*	*	*
9·4	−11	−25	*	*	*	*	*	*	−5	+6	+15	+21	+22	+21	+16	+8	−3	−15	−19	*	*
9·6	+5	−5	−15	−21	−22	−15	−8	+4	+16	+26	+33	+37	+37	+35	+29	+22	+12	+3	−8	−18	−22
9·8	+19	+9	+2	−3	−2	+4	+12	+23	+33	+42	+47	+50	+49	+47	+41	+34	+25	+16	+6	0	−3
10·0	+28	+20	+14	+12	+13	+19	+27	+37	+47	+54	+58	+60	+59	+55	+49	+42	+34	+25	+18	+13	+12
10·2	+34	+30	+24	+22	+24	+29	+37	+46	+55	+61	+64	+66	+65	+61	+56	+49	+42	+34	+28	+24	+23
10·4	+38	+31	+27	+27	+29	+35	+43	+52	+59	+66	+69	+69	+67	+63	+56	+49	+42	+35	+29	+27	+27
10·6	+39	+33	+30	+30	+33	+39	+47	+55	+62	+67	+69	*	*	*	*	+50	+44	+37	+32	+29	+30
10·8	+39	+33	+31	+31	+35	+40	+47	+56	+62	+67	*	*	*	*	*	*	+43	+37	+33	+31	+32
11·0	*	+33	+30	+31	+33	+40	+47	+54	*	*	*	*	*	*	*	*	*	+36	+32	+30	+32
11·2	*	*	+29	+30	+32	+38	+44	*	*	*	*	*	*	*	*	*	*	*	+30	+32	+31
13·8	*	*	+46	+40	+34	+30	+29	*	*	*	*	*	*	*	*	*	*	*	*	+44	+38
14·0	*	+56	+49	+41	+36	+32	+30	+30	*	*	*	*	*	*	*	*	*	*	+53	+46	+40
14·2	+64	+57	+50	+42	+36	+32	+31	+32	+34	+42	*	*	*	*	*	*	*	+62	+56	+48	+40
14·4	+64	+58	+49	+41	+35	+31	+29	+32	+36	+43	+49	*	*	*	*	+70	+67	+62	+56	+47	+39
14·6	+62	+56	+47	+39	+31	+27	+26	+29	+35	+42	+49	+56	+62	+68	+69	+69	+66	+60	+53	+44	+36
14·8	+58	+51	+41	+33	+25	+21	+22	+26	+31	+39	+47	+55	+61	+65	+67	+66	+62	+55	+48	+39	+30
15·0	+50	+42	+33	+23	+16	+12	+14	+18	+26	+34	+42	+50	+56	+59	+61	+60	+55	+48	+39	+29	+21
15·2	+40	+30	+19	+10	+2	0	+2	+9	+17	+26	+35	+42	+48	+52	+52	+50	+45	+36	+27	+15	+7
15·4	+24	+12	0	−10	−17	−18	−13	−6	+5	+16	+25	+33	+38	+41	+40	+37	+29	+21	+9	−3	−12
15·6	+2	−11	*	*	*	*	*	−25	−11	0	+11	+19	+24	+25	+24	+19	+10	−1	*	*	*
15·8	*	*	*	*	*	*	*	*	*	−20	−8	0	+5	+5	+2	−5	−16	*	*	*	*
17·6	*	*	+2	−5	−9	−4	+2	*	*	*	*	*	*	*	*	*	*	*	*	−1	−5
17·8	−3	−14	−21	−25	−26	−23	−17	−8	+4	*	*	*	*	*	*	*	*	−7	−17	−23	−26
18·0	−24	−33	−39	−41	−40	−36	−30	−22	−12	−2	+8	*	*	*	*	−5	−17	−27	−35	−40	−41

No constant has been applied. The unit equals 0·0000I. This Table is complementary to Table XLVIII. When the Latitude as derived from Tables XXX—XXXVIII lies between 0·50 and 0·95 or between 2·50 and 2·05, it supplies an equation which must be applied to it before it is used as argument of Table XLVa.

SATELLITE IV

Tables of the Phenomena

XLVa

Lat	Semi duration	3 Δ 001	4 ½Δ²	5 Corr Sh Tr	6 Lat
	d				
0 500					2 500
0 502	0064 1	2 66	471	− 31	2 498
504	905	1171	77	44	2 496
506	1 84	935	40	54	2 494
508	1 793	8 4	6	6	2 492
510	14298	715	19	69	2 490
0 512	0 015654	651	14	− 76	2 488
514	169	6	11	82	2 486
516	18 60	561	9	87	2 484
518	19145	5 8	8	9	2 482
520	17	5 1	6	98	2 480
0 522	0 0 1148	477	6	− 1	2 478
524	2 78	455	5	107	2 476
526	968	436	5	111	2 474
528	38	419	4	115	2 472
530	4645	405	3	119	2 470
0 532	0 025441	392	3	− 123	2 468
534	6211	379	3	1 7	2 466
536	6958	368	3	13	2 464
538	7683	358	3	134	2 462
540	28388	348		137	2 460
0 542	0 029074	339		− 141	2 458
544	9743	331	2	143	2 456
546	3 397	323		147	2 454
548	31035	315		150	2 452
550	31658	3 9	2	153	2 450
0 552	0 3 69	30		− 156	2 448
554	3 866	96	1	159	2 446
556	33453	291	1	162	2 444
558	340 9	285	1	164	2 442
560	34592	79	1	167	2 440
0 562	0 035145	75	1	− 170	2 438
564	35690	7	1	17	2 436
566	362 6	65	1	175	2 434
568	36751	61	1	178	2 432
570	37268	256	1	180	2 430
0 572	0 037776	53	1	− 183	2 428
574	38 78	49	1	185	2 426
576	3877	46	1	187	2 424
578	39 60	24	1	190	2 422
580	39739	238	1	192	2 420
0 582	0 040 1	35	1	− 194	2 418
584	40678	3	1	197	2 416
586	41138	29	1	199	2 414
588	4159	6	1	1	2 412
590	4 04	3	1	03	2 410
0 592	04 48	20	1	− 2 5	2 408
594	4 919	17	1	07	2 406
596	43350	14	1	210	2 404
598	43776	1	1	21	2 402
0 600	0 44199	210	1	− 13	2 400

Semiduration

Lat	Semi duration	3 Δ 0	4 Corr Sh T	5 Lat
0 600	0 044199	1	− 13	2 400
0 602	44615	07	15	2 398
604	450 5	204	17	2 396
606	45432		19	2 394
608	45835	00	1	2 392
610	46 33	198	23	2 390
0 612	0 0466 7	196	− 225	2 388
614	47017	194	7	2 386
616	474 3	19	2 9	2 384
618	47785	190	231	2 382
620	4816	188	33	2 380
0 622	0 048535	186	− 34	2 378
624	48906	185	36	2 376
626	49 73	183	38	2 374
628	49637	181	240	2 372
630	49997	179	4	2 370
0 632	05035	177	− 43	2 368
634	5 705	176	45	2 366
636	51054	174	47	2 364
638	51401	173	48	2 362
640	51744	171	250	2 360
0 642	0 05 085	170	− 252	2 358
644	5 423	168	53	2 356
646	5 757	166	55	2 354
648	53 88	165	56	2 352
650	53418	164	58	2 350
0 652	053743	16	− 59	2 348
654	54066	161	61	2 346
656	54387	160	263	2 344
658	54705	158	64	2 342
660	550 0	157	66	2 340
0 662	0 5533	156	− 267	2 338
664	55643	155	269	2 336
666	55951	153	70	2 334
668	56 56	152	72	2 332
670	56559	151	273	2 330
0 672	0 056860	150	− 2 5	2 328
674	57158	149	76	2 326
676	57454	148	278	2 324
678	57748	146	279	2 322
680	5804	145	280	2 320
0 682	0 0583 9	144	− 282	2 318
684	58617	143	83	2 316
686	5890	14	84	2 314
688	59185	141	86	2 312
690	59466	140	87	2 310
0 692	0 059746	139	− 88	2 308
694	600 3	138	29	2 306
696	60298	137	91	2 304
698	60571	136	293	2 302
0 700	0 060842	135	− 94	2 300

Argument Latitude

Lat	Semi duration	3 Δ 001	4 Cor Sh Tr	5 Lat
	d			
0 700	0 06 84	135 2	− 94	2 300
0 705	61512	133 0	297	2 295
710	6 17	130 6	3 0	2 290
715	6 818	128 5	303	2 285
720	63457	126 6	307	2 280
725	64 84	1 4 4	310	2 275
0 730	0 64701	12 3	− 313	2 270
735	653 7	1 5	315	2 265
740	65906	118 7	318	2 260
745	66494	116 8	321	2 255
750	6 074	115 0	3 4	2 250
0 755	0 067644	113	− 327	2 245
760	68 06	111 6	3 9	2 240
765	68760	110 0	33	2 235
770	69306	108 3	335	2 230
775	69843	106 8	337	2 225
0 780	0 070374	105 4	− 340	2 220
785	70897	103 7	342	2 215
790	71411	102 1	345	2 210
795	71918	100 9	347	2 205
800	72420	99 5	350	2 200
0 805	0 72913	97 8	− 35	2 195
810	73398	96 6	355	2 190
815	73879	95 5	357	2 185
820	74353	94 1	359	2 180
825	7482	92 8	361	2 175
0 830	0 75 81	91 5	− 364	2 170
835	75735	90 3	366	2 165
840	76184	89 1	368	2 160
845	76626	88 0	370	2 155
850	77064	86 9	372	2 150
0 855	0 077495	85 6	− 374	2 145
860	77920	84 4	376	2 140
865	78339	83 3	378	2 135
870	78753	82 2	381	2 130
875	79161	81 3	383	2 125
0 880	0 079566	80	− 384	2 120
885	79963	79 0	386	2 115
890	8 356	78 0	388	2 110
895	80743	77 0	390	2 105
900	811 6	76 1	392	2 100
0 905	0 081504	75 1	− 394	2 095
910	81877	74 1	396	2 090
915	82 45	73 2	397	2 085
920	8 609	7 2	399	2 080
925	82967	71 3	401	2 075
0 930	0 083322	7 4	− 402	2 070
935	83671	69 5	4 4	2 065
940	84 17	68 6	406	2 060
945	84357	67 7	408	2 055
0 950	084694	66 8	− 409	2 050

Appl d C t t oooo The Argum t f T bl XLV i th L it d d I d m 1 bl XXX XXXVIII t d by th q f T bl XLII XLIV Tl t y m tb f tl rr t d by th q ti f T bl XLIX LI F Sh d w d T t th ti f m l m i th t f J p t Ph f m T bl LXI must ls b ppli d

SATELLITE IV

Tables of the Phenomena

XLVb — Semiduration

1	2	3	4	5
Lat.	Semi-duration.	Δ 0·001	Corr^{n}. Sh., Tr.	Lat.
	d			
0·950	0·083704	66,8	−409	**2·050**
0·955	84035	65,9	411	**2·045**
0·960	84363	65,1	412	**2·040**
0·965	84686	64,2	414	**2·035**
0·970	85005	63,3	415	**2·030**
0·975	85319	62,6	417	**2·025**
0·980	0·085631	61,8	−418	**2·020**
0·985	85937	60,8	420	**2·015**
0·990	86239	59,9	421	**2·010**
0·995	86538	59,5	423	**2·005**
1·000	86834	58,6	424	**2·000**
1·005	0·087124	57,7	−426	**1·995**
1·010	87411	57,0	427	**1·990**
1·015	87694	56,3	428	**1·985**
1·020	87974	55,5	430	**1·980**
1·025	88249	54,7	431	**1·975**
1·030	0·088521	54,0	−432	**1·970**
1·035	88789	53,3	434	**1·965**
1·040	89054	52,5	435	**1·960**
1·045	89314	51,8	436	**1·955**
1·050	89572	51,1	438	**1·950**
1·055	0·089825	50,4	−439	**1·945**
1·060	90076	49,7	440	**1·940**
1·065	90322	49,0	441	**1·935**
1·070	90566	48,3	442	**1·930**
1·075	90805	47,6	443	**1·925**
1·080	0·091042	47,0	−444	**1·920**
1·085	91275	46,2	446	**1·915**
1·090	91504	45,6	447	**1·910**
1·095	91731	45,0	448	**1·905**
1·100	91954	44,2	449	**1·900**
1·105	0·092173	43,6	−450	**1·895**
1·110	92390	43,0	451	**1·890**
1·115	92603	42,3	452	**1·885**
1·120	92813	41,7	453	**1·880**
1·125	93020	41,0	454	**1·875**
1·130	0·093223	40,3	−455	**1·870**
1·135	93423	39,8	456	**1·865**
1·140	93621	39,2	457	**1·860**
1·145	93815	38,5	458	**1·855**
1·150	94006	37,8	459	**1·850**
1·155	0·094193	37,3	−460	**1·845**
1·160	94379	36,7	461	**1·840**
1·165	94560	36,0	462	**1·835**
1·170	94739	35,5	462	**1·830**
1·175	94915	34,9	463	**1·825**
1·180	0·095088	34,2	−464	**1·820**
1·185	95257	33,7	465	**1·815**
1·190	95425	33,1	466	**1·810**
1·195	95588	32,4	467	**1·805**
1·200	0·095749	31,9	−467	**1·800**

1	2	3	4	5
Lat.	Semi-duration.	Δ 0·001	Corr^{n}. Sh., Tr.	Lat.
	d			
1·200	0·095749	31,9	−467	**1·800**
1·205	95907	31,4	468	**1·795**
1·210	96063	30,8	469	**1·790**
1·215	96215	30,1	470	**1·785**
1·220	96364	29,6	470	**1·780**
1·225	96511	29,0	471	**1·775**
1·230	0·096654	28,4	−472	**1·770**
1·235	96795	27,9	472	**1·765**
1·240	96933	27,3	473	**1·760**
1·245	97068	26,8	474	**1·755**
1·250	97201	26,2	474	**1·750**
1·255	0·097330	25,6	−475	**1·745**
1·260	97457	25,1	476	**1·740**
1·265	97581	24,5	476	**1·735**
1·270	97702	23,9	477	**1·730**
1·275	97820	23,4	477	**1·725**
1·280	0·097936	22,9	−478	**1·720**
1·285	98049	22,3	478	**1·715**
1·290	98159	21,7	479	**1·710**
1·295	98266	21,3	480	**1·705**
1·300	98372	20,7	480	**1·700**
1·305	0·098473	20,1	−481	**1·695**
1·310	98573	19,7	481	**1·690**
1·315	98670	19,2	482	**1·685**
1·320	98765	18,6	482	**1·680**
1·325	98856	18,0	483	**1·675**
1·330	0·098945	17,4	−483	**1·670**
1·335	99030	17,0	483	**1·665**
1·340	99115	16,5	483	**1.660**
1·345	99195	15,9	484	**1·655**
1·350	99274	15,4	484	**1·650**
1·355	0·099349	14,9	−484	**1·645**
1·360	99423	14,3	485	**1·640**
1·365	99492	13,7	485	**1·635**
1·370	99560	13,3	486	**1·630**
1·375	99625	12,8	486	**1·625**
1·380	0·099688	12,3	−486	**1·620**
1·385	99748	11,7	486	**1·615**
1·390	99805	11,3	487	**1·610**
1·395	99860	10,8	487	**1·605**
1·400	99913	10,2	487	**1·600**
1·405	0·099962	9,6	−488	**1·595**
1·410	·100009	9,2	488	**1·590**
1·415	·100054	8,6	488	**1·585**
1·420	·100095	8,1	488	**1·580**
1·425	·100135	7,6	488	**1·575**
1·430	0·100171	7,1	−489	**1·570**
1·435	·100206	6,7	489	**1·565**
1·440	·100238	6,1	489	**1·560**
1·445	·100267	5,6	489	**1·555**
1·450	0·100294	5,1	−489	**1·550**

1	2	3	4	5
Lat.	Semi-duration.	Δ 0·001	Corr^{n}. Sh., Tr.	Lat.
	d			
1·450	0·100294	5,1	−489	**1·550**
1·455	·100318	4,6	489	**1·545**
1·460	·100340	4,0	489	**1·540**
1·465	·100358	3,5	490	**1·535**
1·470	·100375	3,0	490	**1·530**
1·475	·100388	2,6	490	**1·525**
1·480	0·100401	2,1	−490	**1·520**
1·485	·100409	1,5	490	**1·515**
1·490	·100416	1,0	490	**1·510**
1·495	·100419	0,5	490	**1·505**
1·500	0·100421	0,0	−490	**1·500**

Added Constant: $-0^{d}{\cdot}001000$. The Argument of Table XLV*b* is the Latitude as taken from Tables XXX–XXXVIII.

The entry must be corrected by the equations from Tables XLVI–LI. For Shadows and Transits the correction from column 4 must be applied, and also that for Jupiter's Phase from Table LXI.

SATELLITE IV

Tables of the Phenomena

XLVI Equation of Semiduration

Va / Lat	−0 160	−0 156	−0 152	−0 148	−0 144	−0 140	−0 136	−0 132	−0 128	−0 124	−0 120	−0 116	−0 112	−0 108	−0 104	−0 100	−0 096	−0 092	−0 088	0 084	−0 080	Var / Lat
0 90	614	6 1	6 8	635	64	649	657	664	671	678	685	69	7	707	714	7 1	728	735	74	75	757	2 10
0 92	57	580	588	597	605	613	6 1	6 9	638	646	654	66	670	679	687	695	7 3	711	720	728	736	2 08
0 94	533	541	550	560	569	578	587	596	606	615	6 4	633	64	65	661	670	679	688	698	707	716	2 06
0 96	495	505	515	526	536	546	556	566	576	586	596	607	617	6 7	637	647	657	667	677	687	698	2 04
0 98	460	471	482	493	5 4	515	5 6	537	548	559	57	581	59	6 3	614	6 5	636	647	658	669	68	2 02
1 00	4 7	439	451	463	475	486	498	510	5	534	516	557	569	581	593	605	616	6 8	64	65	663	2 00
1 02	397	409	4 2	435	447	46	473	485	498	510	5 3	535	548	560	573	586	598	611	6 3	636	648	1 98
1 04	368	381	395	408	4	435	448	461	475	488	50	514	5 8	541	555	568	581	594	607	621	634	1 96
1 06	341	355	369	383	397	411	4 5	439	453	467	481	495	50)	523	537	551	564	579	592	607	6 0	1 94
1 08	316	33	345	360	375	389	404	418	433	447	46	476	491	5 6	5 1	535	549	564	578	593	608	1 92
1 10	9	307	3 3	338	353	368	384	398	414	4 9	444	459	475	490	505	5 0	535	551	565	581	5)6	1 90
1 12	70	286	302	317	333	349	365	380	396	412	4 8	443	459	475	491	506	522	538	553	569	585	1 88
1 14	5	66	28	98	315	331	347	363	38	396	412	428	445	461	478	493	509	526	542	559	574	1 86
1 16	3	47	64	280	297	313	331	347	364	381	398	414	431	448	465	481	498	515	531	548	565	1 84
1 18	1	9	46	63	81	98	315	332	35	367	384	4 1	419	435	453	470	487	504	5 1	539	556	1 82
1 20	196	13	31	48	66	283	301	319	337	354	372	389	407	4 4	44	460	477	495	512	530	547	1 80
1 22	181	198	17	234	53	27	89	306	3 5	34	361	378	397	414	433	450	468	486	504	52	540	1 78
1 24	166	184	2 3	21	40	58	76	94	313	331	350	368	387	405	423	441	459	478	496	515	533	1 76
1 26	154	17	191	209	9	247	266	84	303	3	341	359	378	396	415	434	452	471	489	508	5 6	1 74
1 28	14	160	180	198	18	236	56	74	93	31	331	35	369	388	4 7	426	444	464	48	50	5 0	1 72
1 30	131	15	169	188	208	227	46	65	85	304	3 3	34	36	381	40	419	438	458	477	496	515	1 70
1 32	1 1	14	160	179	199	18	38	57	77	96	316	335	355	374	394	413	432	45	471	491	510	1 68
1 34	114	133	153	172	19	1	3	251	271	290	311	330	350	369	389	408	428	448	467	487	506	1 66
1 36	106	1 5	145	165	185	5	5	44	65	284	304	3 4	344	364	381	403	423	444	463	483	502	1 64
1 38	99	119	139	159	179	199	19	39	259	79	300	319	340	359	38	399	419	439	459	479	499	1 62
1 40	93	113	134	153	174	194	14	234	55	75	95	315	336	355	376	396	415	436	456	476	496	1 60
1 42	89	109	130	150	17	190	211	231	25	27	29	312	333	353	373	393	413	434	454	474	494	1 58
1 44	85	105	126	146	167	187	07	7	48	68	89	3 9	330	350	371	391	410	431	451	472	492	1 56
1 46	83	103	1 4	144	164	184	05	5	246	266	87	307	3 8	348	369	389	409	430	450	471	491	1 54
1 48	81	101	1 2	142	163	183	204	4	245	65	86	306	3 7	347	368	388	408	4 9	449	470	490	1 52
1 50	81	101	1	14	163	183	204	2 4	45	65	86	306	3 7	347	368	388	4 8	429	449	470	490	1 50

Appli d C t t + Th t q l ∞ Thi T bl i mpl m t y t T bl XLIII
It ppli t th S m d ti wh h ppl bl wl th L t t d d i d f m T bl XXX XXXVIII li b t 95 d 5

SATELLITE IV

Tables of the Phenomena

XLVI *continued* — Equation of Semiduration

Lat. \ Var.	−·0080	−·0076	−·0072	−·0068	−·0064	−·0060	−·0056	−·0052	−·0048	−·0044	−·0040	−·0036	−·0032	−·0028	−·0024	−·0020	−·0016	−·0012	−·0008	−·0004	·0000	Var. / Lat.
0·90	757	764	771	778	785	793	800	807	814	821	828	836	843	850	857	864	871	879	886	893	900	**2·10**
0·92	736	744	752	761	769	777	785	793	802	810	818	826	834	843	851	859	867	875	884	892	900	**2·08**
0·94	716	725	734	744	753	762	771	780	790	799	808	817	826	836	845	854	863	872	882	891	900	**2·06**
0·96	698	708	718	728	738	748	758	768	779	789	799	809	819	829	839	849	860	870	880	890	900	**2·04**
0·98	680	691	702	713	724	735	746	757	768	779	790	801	812	823	834	845	856	867	878	889	900	**2·02**
1·00	663	676	687	699	711	723	735	747	758	770	782	794	805	817	829	841	853	865	876	888	900	**2·00**
1·02	648	661	673	686	699	712	724	737	749	762	774	787	799	812	824	837	850	863	875	888	900	**1·98**
1·04	634	648	661	674	687	701	714	727	740	754	767	781	794	807	820	834	847	860	873	887	900	**1·96**
1·06	620	635	648	663	676	691	704	719	732	747	760	775	788	802	816	830	844	858	872	886	900	**1·94**
1·08	608	623	637	652	666	681	695	710	725	740	754	769	783	798	812	827	842	857	871	886	900	**1·92**
1·10	596	611	626	642	657	672	687	703	717	733	748	763	778	794	809	824	839	855	870	885	900	**1·90**
1·12	585	601	616	632	648	664	679	695	711	727	742	759	774	790	805	822	837	853	868	885	900	**1·88**
1·14	574	591	607	624	640	656	672	689	705	721	737	754	770	786	802	819	835	852	867	884	900	**1·86**
1·16	565	582	598	615	632	649	665	682	699	716	732	749	766	783	799	817	833	850	866	884	900	**1·84**
1·18	556	573	590	608	624	642	659	677	693	711	728	745	762	780	797	814	831	849	866	883	900	**1·82**
1·20	547	565	583	601	618	636	653	671	688	706	724	742	759	777	794	812	829	848	865	883	900	**1·80**
1·22	540	558	576	594	612	630	648	666	684	702	720	738	756	774	792	810	828	846	864	882	900	**1·78**
1·24	533	551	569	588	606	625	643	662	680	698	716	735	753	772	790	809	827	845	863	882	900	**1·76**
1·26	526	546	564	583	601	620	639	658	676	695	713	732	751	770	788	807	825	844	863	882	900	**1·74**
1·28	520	540	558	578	596	616	634	654	672	692	710	730	748	768	786	806	824	844	862	881	900	**1·72**
1·30	515	535	554	573	592	612	631	650	669	689	708	727	746	766	785	804	823	843	862	881	900	**1·70**
1·32	510	530	549	569	588	608	627	647	666	686	705	725	744	764	783	803	822	842	861	881	900	**1·68**
1·34	506	527	546	566	585	605	624	645	664	684	703	723	743	763	782	802	821	841	861	881	900	**1·66**
1·36	502	523	542	562	582	602	622	642	661	682	701	722	741	761	781	801	820	841	860	881	900	**1·64**
1·38	499	520	539	560	579	600	619	640	659	680	700	720	740	760	780	800	820	840	860	880	900	**1·62**
1·40	496	517	537	557	577	598	617	638	658	678	698	719	738	759	779	800	819	840	860	880	900	**1·60**
1·42	494	515	535	555	575	596	616	637	656	677	697	718	738	758	778	799	819	840	859	880	900	**1·58**
1·44	492	513	533	554	574	595	614	635	655	676	696	717	737	758	778	799	818	839	859	880	900	**1·56**
1·46	491	512	532	553	573	594	614	635	654	675	695	716	736	757	777	798	818	839	859	880	900	**1·54**
1·48	490	511	531	552	572	593	613	634	654	675	695	716	736	757	777	798	818	839	859	880	900	**1·52**
1·50	490	511	531	552	572	593	613	634	654	675	695	716	736	757	777	798	818	839	859	880	900	**1·50**

Applied Constant: +900. The unit equals $0^{d}\cdot000001$. This Table is complementary to Table XLII.

It supplies a correction to the Semiduration which is applicable when the Latitude as derived from Tables XXX–XXXVIII lies between 0·95 and 2·05.

SATELLITE IV

Tables of the Phenomena

XLVI *continued*

Equation of Semiduration

Var / Lat	0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	Var / Lat
	000	004	008	012	016	020	024	028	032	036	040	044	048	052	056	060	064	068	072	076	080	
0 90	900	907	914	921	9 9	936	943	950	957	964	97	979	986	993	1000	1007	1015	102	1029	1036	1043	**2 10**
0 92	900	908	916	925	933	941	949	957	966	974	982	99	998	10 7	1015	10 3	1031	1039	1048	1056	1064	**2 08**
0 94	90	909	918	9 8	937	946	955	964	974	983	99	1 01	1010	10 0	10 9	1 38	1047	1056	1 66	1075	1084	**2 06**
0 96	9	910	9 0	930	940	951	961	971	981	991	1001	1 11	1 21	103	1042	105	1062	1 7	1082	1092	11 2	**2 04**
0 98	900	911	922	933	944	955	966	977	988	999	1010	1 1	1 3	1043	1054	1 65	1076	1087	1 98	11 9	11	**2 02**
1 00	900	912	9 4	935	947	959	971	983	995	10 6	1 18	1030	1 4	1053	1066	1077	1089	1101	1113	11 4	1137	**2 00**
1 02	900	91	9 5	937	95	963	976	988	1001	1013	10 6	1038	1051	1063	1076	1088	1101	1114	11 7	1139	1152	**1 98**
1 04	9	913	9 7	940	953	966	980	993	1006	1019	1033	1046	1060	1073	1086	1099	1113	1126	1139	115	1166	**1 96**
1 06	900	914	928	94	956	970	984	998	101	10 5	104	1053	1 68	1081	1096	1109	11 4	1137	115	1165	1180	**1 94**
1 08	900	914	929	943	958	973	988	100	1017	1031	1046	1060	1075	109	1105	1119	1134	1148	1163	1177	1192	**1 92**
1 10	9	915	930	945	961	976	991	1006	102	1037	105	1067	1083	1097	1113	11 8	1143	1158	1174	1189	1 04	**1 90**
1 12	9	915	932	947	963	978	995	1010	10 6	1041	1 58	1073	1089	1105	11 1	1136	1152	1168	1184	1199	1 15	**1 88**
1 14	900	916	933	948	965	981	998	1014	1030	1046	1063	1079	1095	1111	11 8	1144	1160	1176	1193	1209	1 26	**1 86**
1 16	900	916	934	950	967	983	1001	1017	1034	1051	1068	1084	1101	1118	1135	1151	1168	1185	1202	1218	1235	**1 84**
1 18	9 0	917	934	951	969	986	1003	10 0	1038	1 55	107	1089	1107	1123	1141	1158	1176	119	1210	1 7	1244	**1 82**
1 20	900	917	935	95	971	988	1006	10 3	1041	1058	1076	1094	111	1129	1147	1164	118	1199	1217	1235	1253	**1 80**
1 22	900	918	936	954	972	990	1008	1 26	1044	1062	1080	1098	1116	1134	1152	1170	1188	1206	1 24	124	1 60	**1 78**
1 24	9 0	918	937	955	973	991	1010	1 8	1047	1065	1084	1102	1120	1138	1157	1175	1194	1212	1 31	1249	1267	**1 76**
1 26	900	918	937	956	975	993	101	1030	1049	1 68	1087	1105	1124	114	1161	1180	1199	1217	1236	1 54	1 74	**1 74**
1 28	9	919	938	956	976	994	1 14	103	1052	1 7	1090	11 8	11 8	1146	1166	1184	1204	122	1 4	1260	1280	**1 72**
1 30	900	919	938	957	977	996	1015	1034	1054	1073	109	1111	1131	1150	1169	1188	1208	1227	1246	1265	1 85	**1 70**
1 32	9 0	919	939	958	978	997	1017	1036	1056	1 75	1095	1114	1134	1153	1173	1192	1212	1231	1251	1270	1290	**1 68**
1 34	900	919	939	959	979	998	1018	1 37	1 57	1 77	1097	1116	1136	1155	1176	1195	1215	1234	1254	1 73	1 94	**1 66**
1 36	90	919	94	959	98	999	1 19	1039	1 59	1078	1 99	1118	1139	1158	1178	1198	1 18	1238	1258	1277	1 98	**1 64**
1 38	900	92	940	960	980	100	10 0	1040	1060	1080	1100	1120	1141	1160	1181	1200	1221	1 40	1261	1280	1301	**1 62**
1 40	900	920	940	960	981	1000	10 1	1041	106	1 81	110	1122	1142	1162	1183	1202	12 3	1243	1 63	1283	1304	**1 60**
1 42	900	920	941	960	981	10 1	1 2	1042	106	1082	1103	1123	1144	1163	1184	1204	12 5	1 45	1265	1285	1306	**1 58**
1 44	900	9 0	941	961	98	1001	10	1 42	1 63	1 83	11 4	11 4	1145	1165	1186	1 05	1 26	1246	1267	1 87	1308	**1 56**
1 46	9 0	9 0	941	961	98	1 0	3	1 43	1064	1084	11 5	11 5	1146	1165	1186	1206	1 27	1 47	1 68	1 88	1309	**1 54**
1 48	900	920	941	961	98	10	1 3	1 43	1064	1084	1105	11 5	1146	1166	1187	1207	12 8	1248	1269	1289	1310	**1 52**
1 50	900	920	941	961	982	1002	10 3	1043	1064	1084	1105	1125	1146	1166	1187	1207	1228	1248	1 69	1289	1310	**1 50**

Appl d C t t +9 Tl it ɪ l Th T bl i mpl m t y t T bl XLII
It ppli t t tl S m dur t whi h ppl bl wh th L t t d d i d f m T bl XXX XXXVIII li b tw 95 d 5

XLVI *continued*

Equation of Semiduration

Var. / Lat.	+·0 080	+·0 084	+·0 088	+·0 092	+·0 096	+·0 100	+·0 104	+·0 108	+·0 112	+·0 116	+·0 120	+·0 124	+·0 128	+·0 132	+·0 136	+·0 140	+·0 144	+·0 148	+·0 152	+·0 156	+·0 160	Var. / Lat.
0·90	1043	1050	1058	1065	1072	1079	1086	1093	1100	1108	1115	1122	1129	1136	1143	1151	1158	1165	1172	1179	1186	2·10
0·92	1064	1072	1080	1089	1097	1105	1113	1121	1130	1138	1146	1154	1162	1171	1179	1187	1195	1203	1212	1220	1228	2·08
0·94	1084	1093	1102	1112	1121	1130	1139	1148	1158	1167	1176	1185	1194	1204	1213	1222	1231	1240	1250	1259	1267	2·06
0·96	1102	1113	1123	1133	1143	1153	1163	1173	1183	1193	1204	1214	1224	1234	1244	1254	1264	1274	1285	1295	1305	2·04
0·98	1120	1131	1142	1153	1164	1175	1186	1197	1208	1219	1230	1241	1252	1263	1274	1285	1296	1307	1318	1329	1340	2·02
1·00	1137	1148	1160	1172	1184	1195	1207	1219	1231	1243	1254	1266	1278	1290	1302	1314	1325	1337	1349	1361	1373	2·00
1·02	1152	1164	1177	1189	1202	1214	1227	1240	1252	1265	1277	1290	1302	1315	1327	1340	1353	1365	1378	1391	1403	1·98
1·04	1166	1179	1193	1206	1219	1232	1245	1259	1272	1286	1298	1312	1325	1339	1352	1365	1378	1392	1405	1419	1432	1·96
1·06	1180	1193	1208	1221	1236	1249	1263	1277	1291	1305	1319	1333	1347	1361	1375	1389	1403	1417	1431	1445	1459	1·94
1·08	1192	1207	1222	1236	1251	1265	1279	1294	1309	1324	1338	1353	1367	1382	1396	1411	1425	1440	1455	1470	1484	1·92
1·10	1204	1219	1235	1249	1265	1280	1295	1310	1325	1341	1356	1371	1386	1402	1416	1432	1447	1462	1477	1493	1508	1·90
1·12	1215	1231	1247	1262	1278	1294	1309	1325	1341	1357	1372	1388	1404	1420	1435	1451	1467	1483	1498	1514	1530	1·88
1·14	1226	1241	1258	1274	1291	1307	1322	1339	1355	1372	1388	1404	1420	1437	1453	1469	1485	1502	1518	1534	1550	1·86
1·16	1235	1252	1269	1285	1302	1319	1335	1352	1369	1386	1402	1419	1436	1453	1469	1487	1503	1520	1536	1553	1570	1·84
1·18	1244	1261	1279	1296	1313	1330	1347	1365	1381	1399	1416	1433	1450	1468	1485	1502	1519	1537	1554	1571	1588	1·82
1·20	1253	1270	1288	1305	1323	1340	1358	1376	1393	1411	1428	1446	1463	1481	1499	1517	1534	1552	1569	1587	1604	1·80
1·22	1260	1278	1296	1314	1332	1350	1367	1386	1403	1422	1439	1458	1475	1494	1512	1530	1547	1566	1583	1602	1619	1·78
1·24	1267	1285	1304	1322	1341	1359	1377	1395	1413	1432	1450	1469	1487	1506	1524	1542	1560	1579	1597	1616	1634	1·76
1·26	1274	1292	1311	1329	1348	1366	1385	1404	1422	1441	1459	1478	1497	1516	1534	1553	1571	1591	1609	1628	1646	1·74
1·28	1280	1298	1318	1336	1356	1374	1393	1412	1431	1450	1469	1488	1507	1526	1544	1564	1582	1602	1620	1640	1658	1·72
1·30	1285	1304	1323	1342	1362	1381	1400	1419	1438	1458	1477	1496	1515	1535	1554	1573	1592	1612	1631	1650	1669	1·70
1·32	1290	1309	1329	1348	1368	1387	1406	1426	1445	1465	1484	1504	1523	1543	1562	1582	1601	1621	1640	1660	1679	1·68
1·34	1294	1313	1333	1352	1372	1392	1411	1431	1450	1470	1489	1510	1529	1549	1568	1588	1608	1628	1647	1667	1686	1·66
1·36	1298	1317	1337	1356	1377	1397	1416	1436	1456	1476	1496	1516	1535	1556	1575	1595	1615	1635	1655	1675	1694	1·64
1·38	1301	1321	1341	1361	1381	1401	1420	1441	1460	1481	1500	1521	1541	1561	1581	1601	1621	1641	1661	1681	1701	1·62
1·40	1304	1324	1344	1364	1385	1404	1424	1445	1464	1485	1505	1525	1545	1566	1586	1606	1626	1647	1666	1687	1707	1·60
1·42	1306	1326	1346	1366	1387	1407	1427	1447	1467	1488	1508	1528	1548	1569	1589	1610	1630	1650	1670	1691	1711	1·58
1·44	1308	1328	1349	1369	1390	1409	1429	1450	1470	1491	1511	1532	1552	1573	1593	1613	1633	1654	1674	1695	1715	1·56
1·46	1309	1329	1350	1370	1391	1411	1431	1452	1472	1493	1513	1534	1554	1575	1595	1616	1636	1656	1676	1697	1717	1·54
1·48	1310	1330	1351	1371	1392	1412	1432	1453	1473	1494	1514	1535	1555	1576	1596	1617	1637	1658	1678	1699	1719	1·52
1·50	1310	1330	1351	1371	1392	1412	1432	1453	1473	1494	1514	1535	1555	1576	1596	1617	1637	1658	1678	1699	1719	1·50

Applied Constant +900. The unit equals $0^{d}\cdot000001$. This Table is complementary to Table XLII.

It supplies a correction to the Semiduration which is applicable when the Latitude as derived from Tables XXX-XXXVIII lies between 0·95 and 2·05.

SATELLITE IV
Tables of the Phenomena

XLVII — Equation of Semiduration — Ecl , Oc

J \ M	0^d	1^d	2^d	3^d	4^d	5^d	6^d	7^d	8^d	9^d	10^d	11^d	12^d	13^d	14^d	15^d	16^d	17^d	18^d	19^d	20^d
00	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	9	90	90	90	90	90
02	91	9	93	93	94	93	93	92	91	90	89	89	88	88	89	90	90	91	92	93	94
04	94	96	98	99	99	98	97	95	93	9	9	89	88	89	90	91	93	95	96	98	99
06	1	103	105	106	107	105	103	100	97	94	9	9	90	90	92	95	97	1 0	103	105	1 7
08	107	111	115	116	117	115	111	107	1 2	98	95	93	93	94	97	10	104	108	112	115	117
10	117	1	127	129	1 9	1 6	121	115	1 9	103	99	97	97	99	10	107	113	119	1 4	128	130
12	1 8	136	14		*		134	125	117	110	105	103	103	105	110	116	123	131	138	144	*
14	143	*	*			*			1 6	117	111	109	109	11	118	1 6	135	146		*	*
16			*	*			*	*	*		119	115	116	120	128	138	*		*	*	*
66	*		*	*	*	*			*	*	*		1 8	122	*	*	*	*	*	*	*
68	*				*	*		*			135	1 5	118	114	113	116	*	*	*	*	*
70	1 0	130	*	*	*	*		*	142	132	124	116	110	1 8	107	110	115	1 3	*	*	*
72	11	119	1 6	135	140	14	139	133	127	1 0	113	108	103	101	101	103	108	114	122	129	136
74	5	111	116	1 1	125	1 6	1 4	121	116	110	105	101	98	96	96	98	102	107	113	118	123
76	100	104	108	111	113	114	113	110	107	103	99	95	93	9	93	94	97	101	105	109	112
78	95	98	100	103	104	1 4	103	101	99	96	93	91	90	89	90	91	93	96	99	101	103
80	92	94	95	96	97	97	96	95	93	92	90	89	88	88	89	90	91	93	94	96	97
82	90	91	9	92	9	92	92	9	91	90	90	89	89	69	89	89	90	91	91	9	92
84	90	90	90	89	89	89	9	90	90	9	91	91	91	91	91	91	90	90	90	90	89
86	91	90	89	88	88	88	89	90	91	93	94	94	95	95	94	93	9	91	90	89	88
88	94	91	9	89	89	89	91	93	95	97	99	100	101	10	99	97	95	93	91	89	89
90	97	94	92	91	91	92	94	97	10	1 3	106	108	109	108	106	103	99	96	93	91	91
92	1	98	96	94	94	96	99	103	108	113	117	119	120	118	115	111	106	101	97	95	94
94	108	103	100	98	99	101	106	111	117	124	129	133	134	131	1 6	120	113	107	10	99	98
96	116	109	105	104	105	108	113	1 1	1 8	137	144	*	*	*		131	121	113	108	104	104
98	1 5	117	11	110	112	116	123	132	143		*	*		*	*	*	*	122	115	111	110
100		*	1 0	117	120	125	135				*			*			*			118	118
150	*			1 9	122	118	119	*	*	*	*	*	*		*	*	*	*	*	136	127
152		138	128	1 0	114	11	112	116	1 4		*	*	*		*	*	*	146	134	125	118
154	134	1 6	118	111	107	105	1 6	109	115	1 3	*	*	*	*	*	*	140	13	1 3	116	110
156	1 2	115	109	104	1 1	99	1 0	103	108	114	1	129	134	137	136	132	1 6	120	113	107	103
158	111	1 6	10	98	95	95	95	97	102	107	11	117	1 0	1 2	1 1	119	114	109	105	100	97
160	103	99	96	93	91	91	9	94	97	1 0	1 4	107	110	111	110	108	1 5	1 1	98	95	9
162	96	94	9	90	89	89	89	91	93	96	98	100	102	1	10	100	98	96	93	91	89
164	92	91	91	89	88	88	89	90	91	9	94	95	95	96	95	94	93	92	90	89	88
166	90	9	89	89	89	89	89	90	90	90	91	91	91	91	91	91	91	90	90	89	89
168	9	91	91	9	9	9	91	91	91	90	89	89	89	89	89	89	90	91	91	91	9
170	93	94	95	96	96	96	95	94	9	91	89	88	88	88	89	90	92	93	94	96	96
172	97	99	101	103	103	10	1	98	95	9	91	89	89	89	91	93	95	98	100	1	103
174	1 3	107	110	111	111	110	107	104	100	96	93	9	91	92	94	97	1 1	104	108	110	112
176	112	117	1 1	123	1 3	121	116	111	106	101	97	95	95	96	99	104	109	113	118	1 2	123
178	1 3	130	134	138	138	134	1 8	121	113	107	103	100	1	102	106	112	118	1 5	131	136	138
180	136	145				*		131	12	114	109	106	106	109	114	121	130	139	148	*	*

Appl d C ta t + 9 — 1h unit q l oooo
Th T bl mpl m t y t T bl XLIII It ppl ti t th S mid t wh h ppli bl wh th L tit d d l d
f m T bl XXX XXXVII li b tw 95 d

SATELLITE IV

Tables of the Phenomena

XLVIII — **Equation of Semiduration** — **Sh., Tr.**

J \ M	0d	1d	2d	3d	4d	5d	6d	7d	8d	9d	10d	11d	12d	13d	14d	15d	16d	17d	18d	19d	20d
d 0·0	7	8	9	12	14	17	19	20	21	21	20	18	16	13	11	9	7	7	8	10	12
0·2	9	11	14	16	20	22	23	24	23	21	19	17	14	11	10	9	8	9	11	15	19
0·4	14	18	22	26	28	30	30	29	27	25	22	19	15	14	12	12	13	16	18	23	27
0·6	24	29	34	38	41	41	41	38	35	31	27	23	20	18	17	19	21	25	30	35	40
0·8	37	43	50	54	57	57	55	51	45	39	34	30	27	26	27	29	33	39	45	51	56
1·0	54	61	69	74	77	76	71	65	58	50	44	39	37	36	38	42	49	56	62	71	76
1·2	73	84	93	*	*	*	92	82	72	63	56	51	49	49	53	58	66	76	86	96	*
1·4	96	*	*	*	*	*	*	*	89	77	69	63	62	63	68	76	86	100	*	*	*
1·6	*	*	*	*	*	*	*	*	*	*	84	77	76	78	85	96	*	*	*	*	*
6·6	*	*	*	*	*	*	*	*	*	*	*	*	92	87	*	*	*	*	*	*	*
6·8	*	*	*	*	*	*	*	*	*	*	91	80	74	72	73	79	*	*	*	*	*
7·0	80	90	*	*	*	*	*	*	93	80	72	64	60	59	60	66	73	74	*	*	*
7·2	65	74	79	90	95	94	88	79	69	61	55	48	45	45	48	52	60	68	76	85	91
7·4	52	59	64	69	72	70	65	59	52	44	38	35	34	34	37	41	47	54	61	66	71
7·6	41	46	50	52	53	51	47	42	37	31	27	24	23	25	29	32	37	42	47	51	53
7·8	31	35	37	38	38	35	31	27	23	19	16	15	16	18	22	25	29	33	36	37	38
8·0	25	27	28	27	26	24	20	17	13	11	10	11	12	15	18	21	24	26	27	28	28
8·2	21	22	22	21	18	16	13	11	9	7	8	9	12	15	17	19	21	22	22	22	20
8·4	21	20	19	16	14	11	10	8	7	7	10	12	15	17	19	21	21	21	20	19	16
8·6	23	21	19	16	13	11	9	9	9	12	15	17	21	23	24	25	24	23	21	18	15
8·8	29	25	22	18	16	13	13	14	16	19	23	27	31	32	33	32	30	28	24	20	18
9·0	36	31	27	24	21	20	20	22	26	30	35	40	44	45	45	43	38	35	30	26	23
9·2	46	40	36	31	29	28	30	33	39	46	53	58	62	62	60	56	50	44	39	34	30
9·4	58	51	46	41	40	39	43	48	55	65	73	80	84	82	78	72	64	56	49	44	40
9·6	73	64	57	53	52	53	57	66	74	86	96	*	*	*	*	90	79	69	62	55	53
9·8	89	79	71	66	66	68	75	84	97	*	*	*	*	*	*	*	*	89	79	69	66
10·0	*	*	86	81	82	85	95	*	*	*	*	*	*	*	*	*	*	*	*	83	82
15·0	*	*	*	90	84	83	86	*	*	*	*	*	*	*	*	*	*	*	*	97	88
15·2	*	92	81	73	69	69	71	78	90	*	*	*	*	*	*	*	*	102	88	78	72
15·4	82	72	63	57	54	55	58	64	72	81	*	*	*	*	*	*	90	79	69	61	56
15·6	62	54	47	43	42	42	46	51	58	66	77	81	86	87	83	76	68	59	51	45	43
15·8	44	38	34	31	30	32	35	39	46	52	58	63	65	65	61	56	48	41	36	32	30
16·0	30	25	22	21	21	24	27	31	36	40	44	47	48	47	43	39	33	27	25	23	21
16·2	18	16	14	14	16	18	20	24	28	32	34	35	35	33	30	25	21	18	15	14	14
16·4	11	11	11	11	12	15	18	21	23	25	26	26	24	23	19	15	12	11	9	11	11
16·6	7	8	8	10	13	15	18	20	21	21	21	20	18	15	12	10	9	7	8	9	11
16·8	7	9	11	14	17	20	21	22	22	21	19	17	15	12	10	8	8	9	9	12	15
17·0	12	14	17	21	24	26	27	27	25	23	20	17	14	12	10	10	11	12	15	19	22
17·2	19	23	27	32	34	36	36	34	31	27	24	20	17	15	14	15	17	21	25	29	33
17·4	30	36	42	46	49	50	48	45	40	35	30	27	23	22	22	24	28	32	38	43	48
17·6	46	53	60	65	68	67	63	58	50	45	39	35	32	31	32	36	42	47	55	62	66
17·8	64	73	80	87	90	86	81	75	65	57	50	46	43	43	45	51	58	67	76	83	88
18·0	84	97	*	*	*	*	*	92	81	70	62	58	56	57	60	67	78	89	101	*	*

Applied Constant : +90. The unit equals $0^d \cdot 000001$.

This Table is complementary to Table XLIV. It supplies a correction to the Semiduration which is applicable when the Latitude as derived from Tables XXX–XXXVIII lies between 0·95 and 2·05.

SATELLITE IV

Tables of the Phenomena

Equations of Semiduration

XLIX

α	Ecl Oc	α	Ecl Oc
d			
0	+0 0 0050	2500	−0 000044
100	50	2600	40
200	48	2700	36
300	45	2800	3
400	4	2900	24
500	37	3000	18
600	+0 0003	3100	−0 00 011
700	6	3200	− 4
800	20	3300	+ 4
900	13	3400	11
1000	+ 6	3500	18
1100	−0 000001	3600	+0 0000 4
1200	8	3700	30
1300	15	3800	36
1400	2	3900	41
1500	8	4000	44
1600	−0 000034	4100	+ 000047
1700	39	4200	49
1800	43	4300	50
1900	46	4400	50
2000	49	4500	49
2100	−0 000050	4600	+ 00046
2200	50	4700	43
2300	49	4800	39
2400	47	4900	34
2500	− 000044	5000	+0 00 28

N C t th l dd d

L Ecl, Oc, Sh, Tr

β \ L t	25	24	23	22	21	20	19	18	17	16	15	Lat / β
	05	06	07	08	09	10	11	12	13	14		
d												d
0	10	10	10	10	10	10	10	10	10	10	10	0
20	10	11	12	1	12	13	13	13	13	13	13	20
40	1	12	13	14	14	14	15	15	15	15	15	40
60	10	13	14	15	16	16	16	17	17	17	17	60
80	10	13	15	16	17	18	18	19	19	19	19	80
100	1	14	15	16	17	18	18	19	19	19	19	100
120	10	13	15	16	17	18	18	19	19	19	19	120
140	10	13	14	15	16	16	16	17	17	17	17	140
160	10	12	13	14	14	14	15	15	15	15	15	160
180	10	11	1	12	12	13	13	13	13	13	13	180
200	10	10	10	10	10	10	10	10	10	10	10	200
220	10	9	8	8	8	7	7	7	7	7	7	220
240	10	8	7	6	6	6	5	5	5	5	5	240
260	1	7	6	5	4	4	4	3	3	3	3	260
280	10	7	5	4	3	2		1	1	1	1	280
300	10	6	5	4	3	2		1	1	1	1	300
320	10	7	5	4	3		2	1	1	1	1	320
340	10	7	6	5	4	4	4	3	3	3	3	340
360	10	8	7	6	6	6	6	5	5	5	5	360
380	10	9	8	8	8	7	7	7	7	7	7	380
400	10	10	10	10	10	10	10	10	10	10	10	400

Appli d C t t + 11 it q l 0000

LI Oc, Tr

β \ Lat	2 48	2 46	2 44	2 42	2 40	2 38	2 36	2 34	2 32	2 30	2 20	2 10	2 00	1 90	1 80	1 70	1 60	15 0	I at / β
	0 52	0 54	0 56	0 58	0 60	0 62	0 64	0 66	0 68	0 70	0 80	0 90	1 00	1 10	1 20	1 30	1 40		
d																			d
0	±236	±168	±138	±1 0	±108	± 99	±9	±87	±82	±78	±66	±59	±54	±51	±49	±48	±47	±47	0
20	2 4	160	131	114	103	94	88	82	78	74	63	56	52	49	47	46	45	45	20
40	191	136	111	97	87	80	74	7	66	63	53	48	44	41	4	39	38	38	40
60	136	96	79	69	6	57	53	5	47	45	38	34	31	29	28	28	27	7	60
80	± 70	± 50	± 41	± 36	± 3	± 30	±27	± 6	±25	±24	± 0	±18	±16	±15	±15	±14	±14	±14	80
100	∓	∓ 2	∓ 1	∓ 1	∓ 1	∓ 1	∓ 1	∓ 1	∓ 1	∓ 1	0	0	0	0	0	0	0	0	100
120	∓ 73	∓ 53	∓ 43	∓ 38	∓ 34	∓ 3	∓29	∓27	∓26	∓ 5	∓21	∓19	∓17	∓16	∓16	∓15	∓15	∓15	120
140	138	98	81	70	63	58	54	51	48	46	39	35	3	3	29	29	28	28	140
160	191	136	111	97	87	80	74	70	66	63	53	48	44	41	40	39	38	38	160
180	2 4	160	131	114	103	94	88	82	78	74	63	56	52	49	47	46	45	45	180
200	36	168	138	1	108	99	92	87	82	78	66	59	54	51	49	48	47	47	200
220	∓ 4	∓16	∓131	∓114	∓103	∓ 94	∓88	∓82	∓78	∓ 74	∓63	∓56	∓52	∓49	∓47	∓46	∓45	∓45	220
240	191	136	111	97	87	8	74	70	66	63	53	48	44	41	40	39	38	38	240
260	136	96	79	69	6	57	53	50	47	45	38	34	31	9	28	29	28	27	260
280	∓ 70	∓ 5	∓ 41	∓ 36	∓ 32	∓ 30	∓27	∓26	∓25	∓24	∓20	∓18	∓16	∓15	∓15	∓14	∓14	∓14	280
300	± 2	±	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	300
320	± 73	± 53	± 43	± 38	± 34	± 32	±29	±27	±26	± 5	± 1	±19	±17	±16	±16	±15	±15	±15	320
340	138	98	81	70	63	58	54	51	48	46	39	35	3	30	29	9	8	28	340
360	191	136	111	97	87	80	74	70	66	63	53	48	44	41	40	39	38	38	360
380	4	6	131	114	1 3	94	88	82	78	74	63	56	52	49	47	46	45	45	380
400	± 36	±168	±138	±120	±108	± 99	±9	±87	±82	±78	±66	±59	±54	±51	±49	±48	±47	±47	400

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SATELLITE IV

Tables of the Phenomena

LII Reductions to Middle Argument J

Ecl., Oc.	Δ	½Δ²	J	Sh., Tr.	Δ	½Δ²
1	2	3	4	5	6	7
d			d	d		
−0·000928	−213	0	**0·0**	−0·001072	−288	0
1141	213	+1	**0·1**	1360	288	+1
1353	211	1	**0·2**	1647	286	2
1563	208	2	**0·3**	1931	281	3
1768	204	2	**0·4**	2208	275	3
1970	199	3	**0·5**	2481	268	4
−0·002165	−192	+4	**0·6**	−0·002745	−259	+5
2353	184	4	**0·7**	2999	249	6
2533	176	5	**0·8**	3242	237	6
2704	166	5	**0·9**	3473	225	7
2865	156	5	**1·0**	3692	211	8
−0·003015	−145	+6	**1·1**	−0·003895	−195	+8
3154	132	7	**1·2**	4081	178	9
3279	119	7	**1·3**	4251	161	9
3391	106	7	**1·4**	4403	143	10
3490	91	8	**1·5**	4536	123	10
−0·003573	−76	+7	**1·6**	−0·004649	−103	+10
3642	62	8	**1·7**	4742	83	10
3696	46	8	**1·8**	4815	62	11
3733	30	8	**1·9**	4865	40	11
3755	−14	8	**2·0**	4895	−19	11
−0·003761	+2	+8	**2·1**	−0·004903	+3	+11
3751	18	8	**2·2**	4889	25	11
3725	35	8	**2·3**	4854	47	11
3682	51	8	**2·4**	4796	68	10
3624	65	7	**2·5**	4718	88	10
−0·003552	+80	+7	**2·6**	−0·004620	+109	+10
3464	96	7	**2·7**	4501	129	10
3361	109	7	**2·8**	4363	148	9
3246	122	7	**2·9**	4205	166	9
3117	136	7	**3·0**	4031	183	8
−0·002975	+148	+6	**3·1**	−0·003839	+199	+8
2822	159	5	**3·2**	3633	214	8
2658	169	4	**3·3**	3411	229	7
2484	176	5	**3·4**	3176	241	6
2302	187	5	**3·5**	2929	252	5
−0·002111	+194	+3	**3·6**	−0·002672	+262	+5
1914	200	3	**3·7**	2406	270	4
1712	205	2	**3·8**	2132	277	3
1505	209	2	**3·9**	1852	283	2
1294	212	+1	**4·0**	1567	286	+1
−0·001082	+213	0	**4·1**	−0·001280	+288	0
868	213	0	**4·2**	992	288	0
656	212	−1	**4·3**	704	287	−1
445	210	1	**4·4**	418	284	2
237	207	2	**4·5**	− 136	280	3
−0·000031	+203	−3	**4·6**	+0·000141	+273	−4
+ 168	197	3	**4·7**	410	266	4
362	190	4	**4·8**	672	257	5
548	182	4	**4·9**	924	246	6
+0·000726	+173	−5	**5·0**	+0·001164	+234	−6

Ecl., Oc.	Δ	½Δ²	J	Sh., Tr.	Δ	½Δ²
1	2	3	4	5	6	7
d			d	d		
+0·000726	+173	−5	**5·0**	+0·001164	+234	−6
894	163	5	**5·1**	1392	221	7
1052	153	6	**5·2**	1606	206	8
1199	141	6	**5·3**	1804	190	8
1334	129	7	**5·4**	1986	173	9
1456	115	7	**5·5**	2150	156	9
+0·001564	+102	−7	**5·6**	+0·002298	+138	−10
1659	87	8	**5·7**	2425	118	10
1738	72	8	**5·8**	2533	98	10
1803	57	8	**5·9**	2620	77	11
1852	41	8	**6·0**	2687	56	11
+0·001885	+25	−8	**6·1**	+0·002732	+34	−11
1902	+10	8	**6·2**	2755	+13	11
1904	−7	8	**6·3**	2757	−9	11
1889	23	8	**6·4**	2738	31	11
1858	39	8	**6·5**	2696	53	11
+0·001812	−55	−8	**6·6**	+0·002633	−74	−10
1749	70	7	**6·7**	2549	94	10
1673	84	7	**6·8**	2445	115	10
1581	99	7	**6·9**	2320	135	10
1475	113	7	**7·0**	2176	153	9
+0·001355	−127	−7	**7·1**	+0·002015	−171	−9
1222	139	6	**7·2**	1835	187	8
1077	151	6	**7·3**	1640	203	8
921	162	5	**7·4**	1428	219	7
754	172	5	**7·5**	1203	232	6
+0·000578	−180	−4	**7·6**	+0·000965	−244	−6
394	189	4	**7·7**	715	255	5
201	196	3	**7·8**	455	265	5
+ 2	202	3	**7·9**	+ 186	273	3
− 202	206	2	**8·0**	− 90	279	2
−0·000409	−209	−2	**8·1**	−0·000371	−283	−2
620	212	−1	**8·2**	656	287	−1
833	213	0	**8·3**	944	288	0
1046	213	0	**8·4**	1232	288	0
1259	212	+1	**8·5**	1520	287	+1
−0·001470	−210	+1	**8·6**	−0·001805	−283	+2
1678	206	3	**8·7**	2086	278	3
1881	200	3	**8·8**	2360	271	4
2078	195	3	**8·9**	2628	264	4
2270	188	4	**9·0**	2887	254	5
−0·002454	−180	+4	**9·1**	−0·003136	−243	+6
2629	171	5	**9·2**	3372	230	6
2795	161	5	**9·3**	3596	218	7
2950	150	6	**9·4**	3807	202	8
3094	138	6	**9·5**	3999	186	8
−0·003225	−125	+7	**9·6**	−0·004178	−170	+9
3343	112	7	**9·7**	4338	151	10
3448	98	7	**9·8**	4480	132	10
3538	83	8	**9·9**	4601	112	10
−0·003614	−68	+8	**10·0**	−0·004703	−92	+10

Applied Constant: −0ᵈ·001000. This Table includes a constant portion of the Equation of Light. The Entry must be Supplemented by the Equations from Tables LIII–LX. The whole must be corrected by adding to it its product by the Variation, as drawn from Tables XXVI–XXIX. For Shadows and Transits it must also be corrected for Jupiter's Phase by Table LXI.

Tables of the Phenomena

LII—*continued* **Reductions to Middle** **Argument J**

Ecl Oc	Δ	½Δ² (3)	J (4)	Sh I (5)	Δ (6)	½Δ² (7)
d			d			
−0 003614	− 68	+ 8	**100**	−0 004703	− 92	+10
3674	53	8	**101**	4785	7	11
3719	37	8	**102**	4846	50	11
3748	21	8	**103**	4885	8	11
3761	− 5	8	**104**	4903	− 7	11
3758	+ 11	8	**105**	4898	+ 15	11
−0 003739	+ 8	+ 8	**106**	−0 0 4872	+ 36	+11
3703	44	8	**107**	4826	58	11
3651	59	7	**108**	4755	79	1
3586	73	7	**109**	4666	99	10
3505	88	8	**110**	4558	120	10
−0 003410	+103	+ 7	**111**	−0 0044 7	+140	+10
3 99	117	7	**112**	4 78	158	9
3176	130	7	**113**	4111	176	9
3 40	143	6	**114**	39 7	19	8
2891	154	5	**115**	37 7	208	7
−0 00 73	+164	+ 5	**116**	−0 003511	+2 1	+ 7
2563	174	5	**117**	3283	235	7
384	183	4	**118**	3041	248	6
197	191	4	**119**	787	58	5
0 3	197	3	**120**	5 5	266	4
−0 001803	+203	+ 3	**121**	−0 00 255	+ 73	+ 4
1598	8		**122**	1978	280	3
1388	11	+ 1	**123**	1695	85	
1176	13	0	**124**	1409	287	+ 1
963	13	0	**125**	11	288	
−0 00075	+ 1	− 1	**126**	−0 00 83	+ 88	0
539	211	1	**127**	545	86	− 1
3 8	09		**128**	− 61	8	2
− 1	2 4		**129**	+ 18	277	3
+ 8	200	3	**130**	9	70	4
+0 000277	+193	− 4	**131**	+0 00 557	+261	− 5
466	186	4	**132**	814	51	6
648	178	5	**133**	1059	39	6
8 1	168	5	**134**	1 9	227	7
983	158	6	**135**	1513	213	7
+0 001136	+146	− 6	**136**	+0 001718	+198	− 8
1275	134	6	**137**	1908	181	9
1404	1 2	7	**138**	80	164	9
1518	108	7	**139**	2 35	146	9
16 9	94	7	**140**	2371	127	10
+0 0017 5	+ 79	− 8	**141**	+0 00 488	+107	−10
1776	64	8	**142**	2584	86	10
183	48	8	**143**	266	66	11
1873	33	8	**144**	715	44	11
1897	+ 16	8	**145**	748	+ 2	11
+0 0019 5	0	− 8	**146**	+0 00 759		−11
1897	− 15	8	**147**	2749	− 21	11
1875	31	8	**148**	717	43	11
1835	48	8	**149**	2664	64	11
+0 0 1779	− 63	− 8	**150**	+ 00 589	− 86	−11

Ecl Oc	Δ	½Δ² (3)	J (4)	Sh T (5)	Δ (6)	½Δ² (7)
d			d	d		
+0 0 1779	− 63	− 8	**150**	+0 002589	− 86	−11
17 9	78	8	**151**	2493	106	10
1624	93	7	**152**	2378	1 5	10
15 4	107	7	**153**	2244	145	10
1411	1 1	7	**154**	089	164	9
1283	1 3	6	**155**	1917	180	8
+0 0 1145	−146	− 6	**156**	+0 001730	−196	− 8
992	158	5	**157**	1525	213	8
830	169	5	**158**	1305	6	7
657	177	4	**159**	1073	239	6
477	185	4	**160**	8 8	251	6
+0 000288	−193	− 4	**161**	0 00057	−261	− 5
+ 91	199	3	**162**	3 7	69	4
− 110	04		**163**	+ 34	76	3
316	208		**164**	− 245	8	3
5 6	21	− 1	**165**	5 9	86	2
−0 000739	−213	0	**166**	−0 000816	−288	− 1
952	213	0	**167**	1104	288	0
1165	1	+ 1	**168**	139	288	+ 1
1377	10	1	**169**	1679	285	2
1585	207	2	**170**	1962	280	3
−0 001791	− 03	+ 2	**171**	−0 002 38	−274	+ 3
1991	198	3	**172**	2510	268	4
186	191	4	**173**	2773	59	5
373	183	4	**174**	3027	248	6
552	175	4	**175**	3269	36	6
−0 00 7	−166	+ 5	**176**	−0 003498	− 3	+ 7
883	156	6	**177**	3715	210	7
3033	143	7	**178**	3917	194	8
3168	130	7	**179**	4103	177	9
3292	118	7	**180**	4270	159	9
−0 003403	−104	+ 7	**181**	−0 004420	−140	+10
3500	90	7	**182**	4550	120	10
3582	75	8	**183**	4660	101	10
365	60	8	**184**	4751	81	10
3702	43	8	**185**	48	60	11
−0 03736	− 7	+ 8	**186**	−0 004870	− 38	+11
3755	− 13	8	**187**	4898	− 17	11
3761	+ 3	8	**188**	4904	+ 5	11
375	20	8	**189**	4887	27	11
37	37	8	**190**	4849	49	11
−0 03676	+ 53	+ 7	**191**	−0 004790	+ 71	+11
3617	67	7	**192**	4708	91	10
354	8	7	**193**	4608	111	10
3453	97	7	**194**	4487	131	10
3349	111	7	**195**	4347	150	9
−0 003 32	+1 4	+ 6	**196**	−0 004188	+168	+ 9
31 1	137	6	**197**	4011	185	8
2958	149	6	**198**	3818	201	8
2804	160	5	**199**	36 9	216	7
−0 00 639	+17	+ 5	**200**	−0 003387	+228	+ 6

Appl d ☾ t t oo Tl T bl 1 d t tp t f th Eq ti f Light Th E t ym t b ppl m t d by th Eq t f m T bl LIII LX Th wh l m t b t d by ddi g t t t p d t by th V i ti d wn f m T bl XXVI XXIX F Sh d w d T it it m t l b corr t d f J pit Ph l y T bl LXI

SATELLITE IV
Tables of the Phenomena

LIII Reductions to Middle Argument K

1	2	3	4	5
Ecl., Oc.	Δ	**K**	Sh., Tr.	Δ
d		d	d	
0·000750	− 47	**0·0**	0·000750	− 55
703	47	**0·1**	696	55
656	47	**0·2**	641	54
610	46	**0·3**	587	54
564	45	**0·4**	534	53
520	44	**0·5**	482	51
0·000477	− 43	**0·6**	0·000432	− 49
435	41	**0·7**	384	47
395	39	**0·8**	338	45
357	37	**0·9**	294	43
322	34	**1·0**	252	40
0·000289	− 32	**1·1**	0·000214	− 37
258	30	**1·2**	179	34
230	26	**1·3**	146	31
206	23	**1·4**	117	27
184	21	**1·5**	92	23
0·000165	− 17	**1·6**	0·000071	− 20
150	14	**1·7**	53	16
138	10	**1·8**	39	12
130	7	**1·9**	29	8
125	− 3	**2·0**	24	− 3
0·000124	0	**2·1**	0·000023	+ 1
126	+ 4	**2·2**	26	5
132	8	**2·3**	32	9
141	11	**2·4**	43	13
154	15	**2·5**	58	17
0·000170	+ 18	**2·6**	0·000076	+ 21
189	21	**2·7**	99	25
212	25	**2·8**	125	28
238	28	**2·9**	155	32
267	30	**3·0**	188	35
0·000298	+ 33	**3·1**	0·000225	+ 39
332	35	**3·2**	264	41
368	37	**3·3**	306	43
406	39	**3·4**	350	46
446	41	**3·5**	397	48
0·000488	+ 43	**3·6**	0·000446	+ 50
532	45	**3·7**	497	52
577	46	**3·8**	549	53
623	46	**3·9**	602	54
669	47	**4·0**	656	54
0·000716	+ 47	**4·1**	0·000710	+ 55
763	47	**4·2**	765	55
810	47	**4·3**	820	55
857	47	**4·4**	874	54
903	46	**4·5**	928	54
0·000948	+ 45	**4·6**	0·000981	+ 52
992	44	**4·7**	1032	50
1035	42	**4·8**	1081	48
1076	40	**4·9**	1129	47
0·001115	+ 39	**5·0**	0·001175	+ 45

1	2	3	4	5
Ecl., Oc.	Δ	**K**	Sh., Tr.	Δ
d		d	d	
0·001115	+ 39	**5·0**	0·001175	+ 45
1153	37	**5·1**	1218	42
1188	34	**5·2**	1259	39
1220	31	**5·3**	1296	36
1250	29	**5·4**	1331	33
1277	26	**5·5**	1362	30
0·001301	+ 23	**5·6**	0·001390	+ 26
1322	20	**5·7**	1414	23
1340	16	**5·8**	1435	19
1354	13	**5·9**	1451	15
1365	9	**6·0**	1464	11
0·001372	+ 5	**6·1**	0·001473	+ 7
1375	+ 2	**6·2**	1477	+ 2
1376	− 1	**6·3**	1477	− 2
1373	5	**6·4**	1474	6
1366	9	**6·5**	1466	10
0·001356	− 12	**6·6**	0·001454	− 14
1342	16	**6·7**	1438	18
1325	19	**6·8**	1418	22
1305	22	**6·9**	1394	26
1281	25	**7·0**	1367	29
0·001255	− 28	**7·1**	0·001336	− 33
1226	31	**7·2**	1302	36
1194	34	**7·3**	1265	39
1159	36	**7·4**	1225	42
1122	38	**7·5**	1182	44
0·001083	− 40	**7·6**	0·001137	− 47
1042	42	**7·7**	1089	49
1000	43	**7·8**	1040	50
956	45	**7·9**	989	52
910	46	**8·0**	936	53
0·000864	− 46	**8·1**	0·000883	− 54
818	47	**8·2**	829	55
771	47	**8·3**	774	55
724	47	**8·4**	719	55
677	47	**8·5**	665	55
0·000630	− 47	**8·6**	0·000610	− 54
584	46	**8·7**	557	53
539	45	**8·8**	505	52
495	43	**8·9**	454	50
453	42	**9·0**	405	48
0·000412	− 40	**9·1**	0·000358	− 46
373	38	**9·2**	313	44
337	35	**9·3**	270	42
303	33	**9·4**	230	38
272	31	**9·5**	194	35
0·000242	− 28	**9·6**	0·000160	− 32
216	25	**9·7**	130	29
192	22	**9·8**	103	25
172	18	**9·9**	80	22
0·000156	− 14	**10·0**	0·000060	− 18

Applied Constant: $+0^{d}\cdot000750$.

SATELLITE IV

Tables of the Phenomena

Reductions to Middle

LIV

		3	4	5
Ecl Oc	Δ 0^d	**L**	Sh Tr	Δ 0
0 000100	+6	**0 0**	d 0 000100	+6
111	5	**0 2**	11	6
1 0	5	**0 4**	1 4	6
13	5	**0 6**	135	5
139	4	**0 8**	145	5
146	4	**1 0**	154	4
000153	+3	**1 2**	0 000162	+4
159	3	**1 4**	169	3
164		**1 6**	174	
167	+1	**1 8**	178	2
168		**2 0**	180	+1
0 000168	−1	**2 2**	0 000180	−1
166	1	**2 4**	177	
163	2	**2 6**	174	
158	3	**2 8**	168	3
153	3	**3 0**	161	4
00146	−4	**3 2**	0 000152	−5
138	5	**3 4**	143	5
1 8	5	**3 6**	133	5
118	5	**3 8**	122	6
109	5	**4 0**	111	6
0 000098	−5	**4 2**	0 000098	−6
89	5	**4 4**	86	6
78	5	**4 6**	75	6
69	5	**4 8**	64	5
60	4	**5 0**	54	5
0 000053	−4	**5 2**	0 000045	−5
46	3	**5 4**	36	4
40	3	**5 6**	30	3
36		**5 8**	5	
33	−1	**6 0**	2	−1
0 00003		**6 2**	0 000020	0
33	+1	**6 4**	1	+1
34	1	**6 6**	3	
38		**6 8**	7	3
4	3	**7 0**	33	3
0 0 0048	+3	**7 2**	0 000040	+4
55	4	**7 4**	48	5
64	5	**7 6**	58	5
73	5	**7 8**	68	6
8	5	**8 0**	8	6
0 00093	+5	**8 2**	0 000091	+6
1 3	5	**8 4**	104	6
113	5	**8 6**	116	6
123	5	**8 8**	1 7	6
132	5	**9 0**	138	5
0 000141	+4	**9 2**	0 000147	+5
149	4	**9 4**	157	5
155	3	**9 6**	165	4
160		**9 8**	171	3
000164	+	**10 0**	0 000175	+2

Appl d C t t +

LV

M	E O S T	**M**	E O S T
0 0	d 0 00005	**10 0**	0 000017
0 2	45	**10 2**	17
0 4	40	**10 4**	16
0 6	35	**10 6**	16
0 8	30	**10 8**	17
1 0	6	**11 0**	18
1 2	0 00 0 3	**11 2**	0 000021
1 4	0	**11 4**	4
1 6	18	**11 6**	8
1 8	17	**11 8**	3
2 0	16	**12 0**	37
2 2	0 000016	**12 2**	0 000042
2 4	17	**12 4**	47
2 6	18	**12 6**	53
2 8	0	**12 8**	57
3 0	23	**13 0**	62
3 2	0 000027	**13 2**	0 000067
3 4	31	**13 4**	71
3 6	36	**13 6**	75
3 8	41	**13 8**	78
4 0	46	**14 0**	81
4 2	0 000051	**14 2**	0 00 083
4 4	56	**14 4**	85
4 6	61	**14 6**	84
4 8	66	**14 8**	84
5 0	70	**15 0**	83
5 2	0 000074	**15 2**	0 000081
5 4	77	**15 4**	78
5 6	80	**15 6**	75
5 8	82	**15 8**	71
6 0	84	**16 0**	67
6 2	0 000085	**16 2**	0 000063
6 4	84	**16 4**	58
6 6	83	**16 6**	53
6 8	8	**16 8**	48
7 0	79	**17 0**	42
7 2	0 000076	**17 2**	0 000037
7 4	7	**17 4**	33
7 6	68	**17 6**	29
7 8	64	**17 8**	24
8 0	59	**18 0**	21
8 2	0 000054	**18 2**	0 000 18
8 4	49	**18 4**	17
8 6	43	**18 6**	17
8 8	38	**18 8**	17
9 0	34	**19 0**	16
9 2	0 000030	**19 2**	0 00016
9 4	5	**19 4**	17
9 6		**19 6**	18
9 8	19	**19 8**	2
10 0	0 000017	**20 0**	0 0000 5

Appl d C ta t + oo

LVI

E	E O S T
0 0	d 0 000050
0 5	55
1 0	6
1 5	65
2 0	69
2 5	73
3 0	0 000075
3 5	77
4 0	78
4 5	78
5 0	77
5 5	0 000075
6 0	72
6 5	68
7 0	64
7 5	59
8 0	0 000054
8 5	48
9 0	43
9 5	38
10 0	34
10 5	0 000030
11 0	26
11 5	24
12 0	23
12 5	22
13 0	0 00002
13 5	4
14 0	26
14 5	9
15 0	33
15 5	0 000038
16 0	43
16 5	48
17 0	53
17 5	58
18 0	0 000063
18 5	68
19 0	71
19 5	74
20 0	0 000077

C t t + 000 5

LVII

I	Ecl Oc
1850	d 0 000 05
60	7
70	9
80	9
90	10
1900	10
1910	0 000011
20	14
30	17
40	
50	29
1960	0 000037
70	46
80	54
90	6
2000	000068

C t t + oo

LVIII

I	Sh Tr
1850	d 0 000095
60	93
70	91
80	91
90	90
1900	90
1910	0 000089
20	86
30	83
40	78
50	71
1960	000063
70	54
80	46
90	38
2000	0 00003

C t t + 0000

SATELLITE IV

Tables of the Phenomena

LIX

Equation of the Reduction

Occultations

J / γ	$0^{\mathrm{d}}.0$	$0^{\mathrm{d}}.5$	$1^{\mathrm{d}}.0$	$1^{\mathrm{d}}.5$	$2^{\mathrm{d}}.0$	$2^{\mathrm{d}}.5$	$3^{\mathrm{d}}.0$	$3^{\mathrm{d}}.5$	$4^{\mathrm{d}}.0$	$4^{\mathrm{d}}.5$	$5^{\mathrm{d}}.0$	$5^{\mathrm{d}}.5$	$6^{\mathrm{d}}.0$	$6^{\mathrm{d}}.5$	$7^{\mathrm{d}}.0$	$7^{\mathrm{d}}.5$	$8^{\mathrm{d}}.0$	$8^{\mathrm{d}}.5$	$9^{\mathrm{d}}.0$
d 0	+ 17	+ 17	+ 16	+ 14	+ 12	+ 10	+ 8	+ 5	+ 1	− 2	− 5	− 8	− 11	− 13	− 15	− 16	− 17	− 17	− 17
10	+109	+107	+101	+ 92	+ 79	+ 64	+ 46	+ 28	+ 8	− 13	− 34	− 51	− 69	− 84	− 95	− 103	− 109	− 109	− 106
20	+197	+193	+182	+166	+144	+116	+ 84	+ 49	+ 13	− 24	− 60	− 94	− 125	− 151	− 171	− 186	− 195	− 196	− 191
30	+280	+274	+259	+236	+204	+164	+119	+ 70	+ 19	− 34	− 85	− 134	− 178	− 214	− 244	− 265	− 278	− 279	− 271
40	+354	+347	+328	+298	+258	+208	+151	+ 88	+ 23	− 44	− 108	− 169	− 225	− 271	− 308	− 335	− 351	− 352	− 342
50	+418	+409	+388	+352	+305	+245	+178	+104	+ 28	− 51	− 127	− 200	− 265	− 321	− 365	− 397	− 415	− 416	− 410
60	+470	+460	+435	+395	+343	+275	+199	+116	+ 31	− 57	− 144	− 224	− 298	− 360	− 409	− 445	− 466	− 468	− 454
70	+507	+497	+470	+427	+370	+298	+216	+126	+ 33	− 63	− 155	− 243	− 322	− 388	− 443	− 483	− 503	− 505	− 490
80	+530	+519	+492	+446	+387	+311	+226	+132	+ 35	− 65	− 163	− 253	− 336	− 406	− 463	− 502	− 526	− 528	− 513
90	+537	+526	+498	+452	+392	+316	+229	+134	+ 35	− 66	− 164	− 257	− 341	− 412	− 469	− 509	− 533	− 535	− 520
100	+528	+517	+490	+445	+386	+311	+225	+131	+ 34	− 65	− 161	− 252	− 336	− 404	− 461	− 502	− 524	− 526	− 511
110	+504	+494	+467	+425	+368	+295	+215	+125	+ 33	− 62	− 155	− 241	− 319	− 387	− 440	− 477	− 500	− 502	− 487
120	+464	+455	+431	+392	+339	+273	+198	+116	+ 30	− 57	− 142	− 222	− 295	− 357	− 405	− 440	− 461	− 462	− 449
130	+412	+403	+382	+347	+301	+242	+176	+103	+ 27	− 50	− 126	− 197	− 262	− 316	− 360	− 390	− 409	− 410	− 399
140	+347	+340	+322	+292	+252	+203	+148	+ 87	+ 22	− 42	− 106	− 166	− 220	− 266	− 303	− 328	− 344	− 345	− 335
150	+272	+266	+252	+229	+198	+160	+115	+ 68	+ 17	− 33	− 83	− 130	− 173	− 209	− 238	− 257	− 270	− 271	− 263
160	+188	+184	+175	+159	+138	+111	+ 80	+ 47	+ 12	− 24	− 57	− 90	− 120	− 144	− 164	− 178	− 187	− 187	− 182
170	+ 98	+ 96	+ 92	+ 83	+ 72	+ 58	+ 42	+ 25	+ 6	− 13	− 30	− 47	− 63	− 76	− 86	− 94	− 98	− 98	− 96
180	+ 9	+ 8	+ 8	+ 7	+ 7	+ 6	+ 4	+ 2	0	− 1	− 3	− 5	− 6	− 7	− 8	− 8	− 9	− 9	− 8
190	− 83	− 82	− 78	− 71	− 61	− 48	− 36	− 20	− 6	+ 10	+ 26	+ 40	+ 53	+ 64	+ 73	+ 80	+ 83	+ 83	+ 82
200	− 173	− 169	− 160	− 146	− 126	− 101	− 74	− 43	− 12	+ 21	+ 54	+ 83	+ 110	+ 132	+ 151	+ 164	+ 172	+ 173	+ 168
210	− 258	− 253	− 239	− 217	− 189	− 151	− 110	− 64	− 17	+ 32	+ 80	+ 123	+ 164	+ 198	+ 226	+ 245	+ 256	+ 257	+ 250
220	− 335	− 328	− 310	− 283	− 244	− 197	− 143	− 83	− 22	+ 41	+ 102	+ 157	+ 213	+ 257	+ 292	+ 317	+ 332	+ 334	+ 324
230	− 403	− 394	− 373	− 339	− 294	− 235	− 171	− 100	− 26	+ 50	+ 123	+ 192	+ 255	+ 308	+ 351	+ 381	+ 399	+ 401	+ 389
240	− 457	− 448	− 424	− 385	− 334	− 269	− 194	− 114	− 30	+ 56	+ 140	+ 219	+ 290	+ 350	+ 399	+ 433	+ 454	+ 455	+ 442
250	− 499	− 489	− 463	− 420	− 364	− 293	− 212	− 124	− 33	+ 61	+ 152	+ 239	+ 317	+ 382	+ 435	+ 472	+ 495	+ 497	+ 483
260	− 526	− 515	− 488	− 443	− 384	− 308	− 223	− 131	− 34	+ 65	+ 161	+ 251	+ 334	+ 402	+ 459	+ 498	+ 522	+ 524	+ 509
270	− 537	− 526	− 498	− 452	− 392	− 318	− 229	− 134	− 35	+ 66	+ 164	+ 257	+ 341	+ 412	+ 469	+ 509	+ 533	+ 535	+ 520
280	− 532	− 521	− 493	− 448	− 389	− 312	− 226	− 132	− 35	+ 65	+ 163	+ 255	+ 338	+ 408	+ 465	+ 504	+ 528	+ 530	+ 515
290	− 512	− 498	− 474	− 431	− 373	− 300	− 218	− 127	− 33	+ 63	+ 157	+ 245	+ 325	+ 392	+ 447	+ 485	+ 508	+ 510	+ 495
300	− 476	− 467	− 442	− 401	− 347	− 279	− 203	− 118	− 31	+ 59	+ 145	+ 228	+ 302	+ 365	+ 416	+ 452	+ 473	+ 474	+ 460
310	− 427	− 418	− 397	− 359	− 312	− 251	− 181	− 106	− 28	+ 52	+ 131	+ 205	+ 272	+ 327	+ 373	+ 405	+ 424	+ 425	+ 414
320	− 365	− 358	− 339	− 307	− 267	− 214	− 156	− 91	− 23	+ 45	+ 112	+ 174	+ 231	+ 280	+ 318	+ 346	+ 362	+ 363	+ 353
330	− 292	− 286	− 271	− 246	− 213	− 171	− 125	− 73	− 19	+ 36	+ 89	+ 140	+ 185	+ 224	+ 256	+ 277	+ 290	+ 291	+ 282
340	− 211	− 206	− 195	− 177	− 153	− 123	− 90	− 52	− 13	+ 27	+ 64	+ 101	+ 134	+ 162	+ 184	+ 200	+ 209	+ 210	+ 204
350	− 122	− 120	− 113	− 102	− 89	− 72	− 51	− 30	− 8	+ 15	+ 37	+ 58	+ 78	+ 94	+ 107	+ 115	+ 121	+ 121	+ 118
360	− 31	− 31	− 30	− 27	− 23	− 19	− 13	− 7	− 2	+ 4	+ 10	+ 15	+ 20	+ 25	+ 28	+ 30	+ 31	+ 31	+ 31
370	+ 61	+ 60	+ 56	+ 49	+ 44	+ 36	+ 26	+ 15	+ 4	− 7	− 19	− 29	− 39	− 47	− 53	− 58	− 61	− 61	− 59
380	+151	+148	+140	+127	+109	+ 88	+ 64	+ 38	+ 10	− 18	− 46	− 72	− 96	− 116	− 131	− 143	− 150	− 150	− 146
390	+237	+232	+220	+200	+173	+138	+101	+ 60	+ 16	− 29	− 73	− 113	− 150	− 182	− 207	− 227	− 235	− 236	− 229
400	+316	+310	+293	+267	+230	+185	+134	+ 79	+ 21	− 40	− 96	− 150	− 200	− 243	− 276	− 300	− 314	− 315	− 306

No Constant has been applied. The unit equals $0^{\mathrm{d}}.00001$. This equation applies for Occultations only.

SATELLITE IV

Tables of the Phenomena

LIX *continued* — **Equation of the Reduction** — **Occultations**

J / γ	9d0	9d5	10d0	10d5	11d0	11d5	12d0	12d5	13d0	13d5	14d0	14d5	15d0	15d5	16d0	16d5	17d0	17d5	18d0
0	− 17	− 15	− 14	− 12	− 9	− 7	− 4	0	+ 3	+ 6	+ 9	+ 11	+ 13	+ 15	+ 17	+ 17	+ 17	+ 16	+ 15
10	−106	− 99	− 89	− 75	− 58	− 41	− 1	− 1	+19	+ 39	+ 58	+ 74	+ 88	+ 98	+106	+109	+108	+104	+ 96
20	−191	−179	−160	−135	−106	− 74	− 38	− 1	+35	+ 71	+105	+133	+158	+177	+190	+196	+195	+187	+174
30	−271	−253	− 28	−192	−151	−1 5	− 54	− 2	+5	+101	+148	+19	+224	+251	+ 71	+ 79	+278	+267	+ 46
40	−34	−3	−287	− 43	−191	−13	− 68	− 3	+64	+1 7	+187	+ 41	+294	+318	+34	+35	+350	+337	+31
50	−410	−378	−340	− 87	−2 5	−156	− 81	− 3	+75	+150	+2	+ 83	+336	+376	+404	+416	+413	+398	+368
60	−454	−4 5	−381	−322	−253	−175	− 91	− 3	+84	+169	+249	+318	+376	+42	+454	+467	+465	+447	+413
70	−490	−459	−411	−348	−274	−190	− 99	− 4	+91	+183	+269	+344	+4 7	+455	+490	+504	+50	+483	+446
80	−513	−480	−430	−364	− 86	−198	−103	− 4	+95	+192	+ 81	+359	+4 6	+477	+512	+5 7	+5 5	+504	+467
90	−5 0	−486	−436	−369	−290	− 01	−104	− 4	+97	+194	+ 85	+364	+431	+483	+519	+534	+532	+511	+473
100	−511	−478	−429	−363	−285	−197	−1	− 4	+95	+191	+ 81	+358	+4 4	+475	+510	+525	+522	+50	+465
110	−487	−456	−409	−347	− 72	−188	− 97	− 3	+92	+18	+267	+34	+405	+453	+487	+501	+498	+480	+444
120	−449	−4 1	−378	−318	−250	−173	− 90	− 3	+84	+166	+246	+315	+373	+417	+448	+461	+460	+443	+409
130	−399	−373	−334	−282	− 2	−153	− 80	− 3	+74	+149	+ 18	+280	+331	+370	+398	+409	+408	+392	+363
140	335	−313	− 81	−238	−186	−13	− 67	−	+6	+124	+184	+235	+278	+312	+335	+345	+343	+330	+305
150	−263	− 46	−2 1	−186	−146	−101	− 53	−	+49	+ 98	+144	+185	+218	+244	+262	+ 71	+ 70	+ 59	+240
160	−182	−171	−153	−129	−10	− 71	− 36	− 1	+34	+ 67	+100	+1 8	+151	+169	+182	+187	+187	+180	+165
170	− 96	− 90	− 80	− 68	− 54	− 37	− 19	0	+18	+ 36	+ 5	+ 67	+ 78	+ 89	+ 95	+ 98	+ 97	+ 94	+ 87
180	− 8	− 8	− 7	− 6	− 5	− 4	− 1		+ 1	+ 3	+ 5	+ 6	+ 7	+ 8	+ 8	+ 9	+ 9	+ 8	+ 8
190	+ 82	+ 76	+ 68	+ 57	+ 45	+ 31	+ 17	+ 1	−15	30	− 44	− 57	− 67	− 75	− 81	− 83	− 83	− 80	− 73
200	+168	+157	+141	+119	+ 93	+ 65	+ 34	+ 1	−31	− 6	− 9	−118	−139	155	−167	−172	−172	−165	−153
210	+250	+234	+210	+178	+140	+ 97	+ 50	+	−46	− 93	−137	−175	− 07	− 32	− 49	− 57	− 56	246	−228
220	+3 4	+3 3	+ 7	+2 9	+181	+125	+ 65	+	−60	−121	−177	− 28	− 69	−300	−3 4	333	−332	319	−295
230	+389	+36	+327	+ 76	+197	+151	+ 78	+ 3	−73	−145	−214	−273	−3 2	−361	−389	−400	−399	−383	−354
240	+44	+414	+371	+314	+ 46	+171	+ 88	+ 3	−83	−164	−242	−310	−367	−411	−44	−455	−454	−436	−402
250	+483	+452	+405	+34	+ 69	+184	+ 97	+ 3	−90	−180	− 65	−338	−401	−448	−48	−496	−494	−475	−439
260	+509	+476	+427	+361	+283	+197	+10	+ 4	−95	−190	− 79	−356	−422	−473	−508	−523	−520	−500	−463
270	+5 0	+486	+436	+369	+ 9	+ 01	+1 4	+ 4	−97	−194	85	−364	−431	−483	−519	534	−532	−511	−473
280	+515	+482	+432	+366	+ 86	+198	+103	+ 4	−96	−192	− 83	−361	−4 7	−479	−514	−5 9	−527	−506	−469
290	+495	+464	+416	+351	+ 76	+191	+ 99	+ 4	−9	−185	− 71	−349	−411	−460	−495	−509	−507	−487	−451
300	+460	+431	+386	+326	+257	+178	+ 93	+ 3	−86	−172	− 53	−323	−383	−428	−460	−473	−471	−454	−420
310	+414	+387	+347	+ 94	+231	+159	+ 83	+ 3	−77	−153	−227	− 90	−343	−384	−413	−4 5	−4 3	−407	−377
320	+353	+330	+ 96	+ 50	+197	+136	+ 71	+	−66	−132	−194	− 48	− 93	−328	−353	−363	−361	−348	−321
330	+ 82	+ 64	+237	+200	+158	+109	+ 57	+	−53	−106	−155	−199	− 35	− 63	−28	−290	−289	−278	−258
340	+ 04	+190	+ 71	+144	+114	+ 79	+ 41	+ 1	−39	76	11	−143	−169	−189	−204	−209	−209	−2 1	−185
350	+118	+111	+ 99	+ 84	+ 66	+ 45	+ 3	0	− 2	− 44	− 65	− 83	− 98	−110	−118	−121	−121	−116	−108
360	+ 31	+ 9	+ 5	+ 2	+ 17	+ 1	+ 6	0	− 6	− 1	− 16	− 1	− 5	− 28	− 30	− 31	− 31	− 30	− 28
370	− 59	− 55	− 50	− 41	− 33	− 3	− 12	− 1	+10	+	+ 33	+ 4	+ 49	+ 56	+ 59	+ 61	+ 60	+ 58	+ 53
380	−146	−136	−1	−103	− 81	− 54	− 29	− 1	+27	+ 54	+ 80	+1	+1 1	+135	+146	+150	+150	+144	+132
390	−2 9	− 15	−19	−163	−1 8	− 88	− 47	−	+42	+ 85	+1 6	+161	+ 90	+ 13	+229	+ 35	+234	+ 26	+209
400	−306	−286	− 57	−217	−170	−118	− 61	−	+57	+114	+167	+ 14	+ 54	+ 84	+305	+314	+313	+301	+278

N C t th b ppl d Th t q l oooo Thi q ti ppl f O lt ti ly

SATELLITE IV
Tables of the Phenomena

LX

Equation of the Reduction

Transits

γ \ J	$0^d.0$	$0^d.5$	$1^d.0$	$1^d.5$	$2^d.0$	$2^d.5$	$3^d.0$	$3^d.5$	$4^d.0$	$4^d.5$	$5^d.0$	$5^d.5$	$6^d.0$	$6^d.5$	$7^d.0$	$7^d.5$	$8^d.0$	$8^d.5$	$9^d.0$
d 0	− 23	− 23	− 22	− 20	− 17	− 13	− 10	− 6	− 1	+ 3	+ 7	+ 11	+ 14	+ 17	+ 20	+ 22	+ 23	+ 23	+ 22
10	−147	−144	−137	−125	−108	− 87	− 63	− 36	− 9	+18	+ 45	+ 71	+ 93	+114	+129	+140	+146	+146	+143
20	−266	−261	−247	−224	−194	−157	−113	− 67	−17	+32	+ 81	+128	+169	+204	+232	+252	+264	+265	+257
30	−379	−371	−351	−319	−276	−221	−161	− 94	−25	+46	+115	+181	+240	+290	+330	+359	+375	+377	+366
40	−478	−469	−444	−402	−349	−281	−204	−120	−31	+58	+145	+229	+304	+366	+417	+453	+474	+476	+462
50	−565	−554	−524	−476	−413	−332	−240	−141	−37	+70	+173	+270	+358	+433	+493	+536	+561	+563	+547
60	−635	−623	−589	−535	−463	−372	−271	−158	−41	+78	+194	+303	+403	+486	+554	+602	+630	+632	+613
70	−685	−672	−635	−578	−500	−404	−292	−171	−45	+84	+209	+329	+435	+525	+598	+650	+680	+682	+663
80	−717	−703	−665	−604	−523	−421	−305	−179	−46	+88	+219	+343	+455	+549	+626	+680	+711	+714	+693
90	−726	−712	−673	−612	−530	−426	−310	−181	−47	+89	+222	+347	+461	+556	+634	+688	+720	+723	+702
100	−714	−700	−663	−602	−521	−419	−305	−178	−46	+87	+218	+342	+453	+547	+622	+677	+708	+711	+690
110	−681	−668	−632	−575	−497	−400	−290	−171	−44	+83	+208	+326	+433	+521	+595	+646	+675	+678	+659
120	−629	−616	−582	−530	−458	−369	−269	−157	−40	+76	+192	+301	+399	+481	+548	+596	+623	+626	+607
130	−557	−546	−517	−470	−406	−327	−237	−139	−36	+67	+169	+266	+354	+426	+486	+528	+552	+555	+538
140	−469	−460	−440	−395	−342	−275	−199	−117	−30	+57	+143	+224	+297	+359	+409	+445	+465	+467	+453
150	−368	−361	−341	−310	−269	−216	−157	− 92	−23	+46	+112	+176	+234	+282	+320	+348	+365	+367	+356
160	−254	−249	−236	−215	−186	−149	−108	− 64	−18	+31	+ 77	+121	+161	+195	+222	+242	+252	+253	+246
170	−134	−131	−124	−112	− 97	− 78	− 57	− 34	− 9	+17	+ 40	+ 63	+ 85	+103	+117	+126	+133	+133	+130
180	− 11	− 11	− 10	− 9	− 8	− 7	− 6	− 3	− 1	+ 1	+ 3	+ 5	+ 7	+ 9	+ 9	+ 10	+ 11	+ 11	+ 11
190	+113	+111	+105	+ 94	+ 83	+ 66	+ 48	+ 28	+ 7	−14	− 35	− 54	− 72	− 87	− 99	−107	−112	−113	−110
200	+234	+230	+217	+198	+171	+138	+100	+ 59	+15	−29	− 72	−112	−149	−180	−204	−222	−232	−234	−227
210	+349	+342	+323	+295	+255	+205	+149	+ 87	+22	−43	−107	−167	−222	−267	−305	−331	−346	−348	−338
220	+453	+443	+420	+382	+330	+266	+193	+114	+30	−55	−138	−216	−288	−347	−395	−429	−449	−451	−438
230	+544	+533	+504	+458	+397	+319	+232	+136	+36	−67	−166	−260	−345	−417	−475	−515	−539	−542	−526
240	+617	+605	+573	+520	+451	+363	+263	+154	+40	−76	−189	−296	−392	−473	−539	−586	−612	−615	−598
250	+674	+661	+625	+568	+492	+397	+287	+169	+44	−83	−206	−322	−428	−517	−588	−639	−669	−671	−652
260	+710	+696	+659	+599	+519	+417	+303	+178	+46	−87	−217	−340	−451	−545	−620	−674	−704	−707	−686
270	+726	+712	+673	+612	+530	+426	+310	+181	+47	−89	−222	−347	−461	−556	−634	−688	−720	−723	−702
280	+719	+704	+667	+606	+525	+423	+307	+179	+46	−88	−219	−344	−457	−551	−628	−682	−713	−716	−695
290	+692	+678	+642	+583	+505	+406	+295	+174	+45	−84	−211	−331	−439	−530	−603	−656	−686	−689	−670
300	+644	+631	+597	+542	+470	+379	+275	+161	+41	−79	−197	−308	−409	−493	−561	−610	−638	−641	−623
310	+577	+566	+536	+486	+421	+339	+247	+144	+37	−73	−176	−276	−366	−442	−504	−547	−572	−575	−558
320	+493	+482	+457	+416	+360	+290	+210	+123	+31	−61	−151	−236	−313	−378	−430	−467	−489	−491	−477
330	+395	+387	+367	+333	+288	+233	+169	+ 99	+25	−49	−120	−189	−251	−302	−344	−375	−391	−393	−382
340	+285	+279	+264	+240	+208	+167	+121	+ 71	+18	−35	− 86	−136	−181	−218	−248	−270	−282	−284	−276
350	+166	+162	+154	+139	+120	+ 97	+ 70	+ 41	+11	−20	− 50	− 78	−106	−126	−144	−157	−165	−165	−160
360	+ 43	+ 43	+ 41	+ 36	+ 31	+ 25	+ 18	+ 11	+ 3	− 6	− 13	− 20	− 28	− 32	− 38	− 41	− 43	− 43	− 41
370	− 82	− 80	− 78	− 70	− 60	− 48	− 36	− 20	− 5	+10	+ 25	+ 39	+ 52	+ 63	+ 72	+ 78	+ 81	+ 82	+ 79
380	−204	−200	−189	−172	−149	−120	− 87	− 51	−13	+25	+ 62	+ 98	+130	+156	+177	+193	+202	+202	+197
390	−320	−314	−297	−270	−234	−188	−135	− 77	−20	+39	+ 97	+153	+203	+245	+279	+303	+317	+319	+310
400	−427	−418	−396	−360	−312	−252	−183	−107	−28	+52	+130	+204	+272	+327	+373	+405	+424	+425	+413

No Constant has been applied. The unit equals $0^d.00001$. This Equation applies for Transits only.

SATELLITE IV

Tables of the Phenomena

LX *continued* — Equation of the Reduction — Transits

γ \ J	$9^d 0$	$9^d 5$	$10^d 0$	$10^d 5$	$11^d 0$	$11^d 5$	$12^d 0$	$12^d 5$	$13^d 0$	$13^d 5$	$14^d 0$	$14^d 5$	$15^d 0$	$15^d 5$	$16^d 0$	$16^d 5$	$17^d 0$	$17^d 5$	$18^d 0$
d 0	+	+ 0	+ 19	+ 16	+ 12	+ 9	+ 4	0	− 4	− 8	− 1	− 15	− 18	− 2	− 2	− 3	− 3	− 2	− 20
10	+143	+133	+1 0	+1	+ 79	+ 53	+ 8	+ 1	− 7	− 54	− 78	−1 0	−118	−13	−143	−146	−146	−140	−130
20	+ 57	+ 4	+ 16	+183	+143	+ 99	+ 51	+ 2	− 48	− 96	−14	−181	− 13	−239	− 57	− 65	− 64	− 54	−235
30	+366	+342	+3 7	+ 60	+ 04	+142	+ 74	+ 3	− 70	−136	− 00	− 56	−304	−340	−365	−376	−375	−360	−334
40	+462	+433	+388	+328	+258	+179	+ 93	+ 3	− 85	−172	−253	−3 5	−383	430	−461	−475	−473	−456	−42
50	+547	+51	+459	+389	+305	+211	+11	+ 4	−10	−204	−300	−383	−453	−508	−546	−56	−560	−538	−498
60	+613	+574	+516	+437	+342	+ 37	+123	+ 4	−114	− 28	337	−433	−509	−571	−613	−632	−(9	−604	−559
70	+663	+619	+557	+471	+37	+256	+133	+ 4	−123	− 47	−364	−464	−550	−616	−66	−682	−679	−652	−605
80	+693	+639	+583	+ 49	+386	+268	+139	+ 5	−1 9	− 58	−380	−486	−575	−646	−692	−714	−710	−682	−63
90	+7	+657	+ 590	+499	+392	+271	+141	+ 5	−131	− 62	−385	−49	−583	−653	−701	7 2	−719	−(91	−640
100	+690	+647	+580	+491	+385	+ 67	+138	+ 4	−1 9	− 58	−379	−484	−573	−642	−690	−711	−707	−680	−(30
110	+659	+616	+ 554	+468	+368	+ 55	+133	+ 4	−123	− 46	−362	−46	−546	−613	−658	−(78	−675	−649	−601
120	+6 7	+568	+511	+432	+ 339	+235	+122	+ 4	−113	−226	−333	−426	−504	−565	−60(	−626	−6 2	−598	−554
130	+538	+ 503	+453	+383	+300	+ 07	+108	+ 3	−100	−200	−294	−376	−445	−499	−537	−554	−55	−530	−491
140	+453	+4 4	+381	+322	+254	+174	+ 92	+	− 85	−169	− 47	−318	376	−4 4	453	−466	−464	−446	−413
150	+356	+33	+ 99	+253	+199	+138	+ 71	+ 2	− 66	−133	−195	−250	− 94	−331	−355	−366	−365	350	−3 4
160	+ 46	+230	+ 07	+175	+136	+ 95	+ 50	+ 1	− 45	− 92	−135	−17	−204	− 29	−246	−253	−252	−243	−224
170	+130	+1	+ 108	+ 91	+ 72	+ 5	+ 26	+ 1	− 24	− 49	− 71	− 91	−108	−1 1	−129	−133	−133	−128	−118
180	+ 11	+ 10	+ 9	+ 8	+ 6	+ 4	+ 2	0	−	− 4	− 6	− 8	9	− 10	− 11	− 11	− 11	− 11	− 10
190	−110	−103	− 9	− 78	− 61	− 43	− 22	− 1	+ 20	+ 40	+ 60	+ 76	+ 91	+102	+109	+113	+112	+107	+100
200	− 27	− 1	−190	−161	−1 6	− 87	− 45	− 2	+ 4	+ 84	+1 5	+159	+187	+210	+ 26	+233	+ 32	+ 23	+207
210	−338	−316	− 84	− 40	−188	−130	− 67	− 3	+ 63	+1 6	+185	+ 37	+280	+315	+337	+347	+346	+333	+308
220	−438	−410	−367	−311	−245	−17	− 88	− 3	+ 81	+163	+ 40	+307	+363	+408	+437	+450	+447	+431	+399
230	−526	−492	−442	−374	−294	− 03	−106	− 4	+ 98	+196	+ 88	+369	+436	+489	+525	+541	+539	+518	+479
240	−598	−559	−50	−425	−333	−231	−120	− 4	+111	+223	+3 8	+419	+494	+556	+597	+614	+611	+588	+544
250	−65	−610	−547	−464	−364	−25	−131	− 4	+1 1	+244	+357	+457	+541	+606	+651	+671	+668	+64	+594
260	−686	−64	−578	−489	−383	− 65	−138	− 4	+129	+ 57	+377	+482	+571	+639	+686	+707	+703	+676	+626
270	−70	−657	−59	−499	−39	− 71	−141	− 5	+131	+ 62	+385	+49	+583	+653	+701	+7 3	+719	+691	+640
280	−695	−65	−585	−494	−388	−268	−139	− 5	+129	+ 60	+382	+487	+577	+647	+694	+716	+712	+684	+633
290	−670	−6 5	−56	−475	−373	− 58	−135	− 4	+125	+ 49	+366	+469	+555	+623	+668	+689	+686	+659	+609
300	−6 3	−583	−523	−443	−347	−24	−125	− 4	+116	+ 33	+341	+437	+517	+580	+622	+641	+638	+613	+568
310	−558	−5	−469	−397	−312	− 16	−112	− 3	+104	+2 8	+306	+391	+464	+5 0	+557	+574	+57	+550	+509
320	−477	−446	−400	−339	− 66	−184	− 95	− 2	+ 89	+178	+261	+334	+396	+443	+476	+491	+489	+469	+435
330	−382	−358	−321	−271	−213	−147	− 76	− 3	+ 71	+143	+21	+268	+317	+356	+381	+393	+391	+376	+348
340	− 76	− 58	−23	−196	−154	−107	− 56	− 2	+ 51	+1 3	+151	+193	+ 8	+257	+ 75	+ 83	+28	+272	+251
350	−160	−150	−134	−113	− 89	− 6	− 3	− 1	+ 3	+ 59	+ 88	+113	+133	+149	+159	+165	+164	+158	+146
360	− 41	− 38	− 35	− 29	− 3	− 16	− 9	− 1	+ 8	+ 16	+ 23	+ 29	+ 34	+ 38	+ 4	+ 43	+ 43	+ 41	+ 38
370	+ 79	+ 74	+ 67	+ 57	+ 44	+ 31	+ 16		− 15	− 3	− 43	− 55	− 66	− 73	− 79	− 81	− 81	− 79	− 72
380	+197	+185	+165	+14	+110	+ 76	+ 39	+ 1	− 36	− 74	−108	−139	64	−183	−197	−203	−202	−194	−180
390	+310	+ 9	+ 61	+ 2	+172	+119	+ 6	+	− 57	−115	−170	− 17	− 57	−288	−308	−318	−317	−305	−282
400	+413	+386	+347	+294	+ 30	+160	+ 83	+ 3	− 77	−154	− 6	−289	−343	−384	−41	−425	−423	−406	−377

N C t tl l ppli d — Th it q l ooooo — Thi Eq ti ppl f T it ly

SATELLITE IV
Tables of the Phenomena

LXI Corrections for Phase Sh., Tr.

1	2	3	4	5
Correcting Factor for Semi-duration.	Δ	p	Correcting Factor for Reduction.	Δ
		d		
·00000	0	0·00	·0000	0
− 1	− 1	·01	0	0
3	3	·02	− 1	0
6	4	·03	1	− 1
11	6	·04	2	2
17	7	·05	4	2
− ·00025	− 9	0·06	− ·0005	− 2
34	10	·07	7	2
45	12	·08	9	2
57	13	·09	11	3
70	14	·10	14	3
− ·00085	− 16	0·11	− ·0017	− 3
101	17	·12	20	4
119	19	·13	24	4
138	20	·14	28	4
158	21	·15	32	4
− ·00180	− 23	0·16	− ·0036	− 5
203	24	·17	41	5
228	26	·18	46	5
254	27	.19	51	6
281	28	·20	57	6
− ·00310	− 30	0·21	− ·0062	− 6
341	32	·22	68	7
373	33	·23	75	7
406	34	·24	82	7
440	35	·25	88	7
− ·00476	− 37	0·26	− ·0096	− 8
513	38	·27	103	8
552	40	·28	111	8
592	41	·29	119	9
− ·00633	− 42	0·30	− ·0128	− 9

1	2	3	4	5
Correcting Factor for Semi-duration.	Δ	p	Correcting Factor for Reduction.	Δ
		d		
− ·00633	− 42	0·30	− ·0128	− 9
676	44	·31	136	9
721	46	·32	145	10
767	47	·33	155	10
814	48	·34	165	10
862	49	·35	174	10
− ·00911	− 50	0·36	− ·0185	10
0962	52	·37	195	11
1015	54	·38	206	11
1069	55	·39	217	12
1125	57	·40	229	12
− ·01182	− 58	0·41	− ·0240	− 12
1240	59	·42	252	13
1300	61	·43	265	13
1361	62	·44	277	13
1423	63	·45	290	13
− ·01487	− 65	0·46	− ·0303	− 14
1552	66	·47	317	14
1618	67	·48	331	14
1686	69	·49	345	15
1755	71	·50	360	15
− ·01827	− 72	0·51	− ·0375	− 15
1899	73	·52	390	16
1972	74	·53	406	16
2046	75	·54	422	16
2122	77	·55	438	16
− ·02200	− 79	0·56	− ·0454	− 17
2280	80	·57	471	17
2360	81	·58	488	18
2442	82	·59	506	18
− ·02524	− 82	0·60	− ·0524	− 18

The Argument is the Annual Parallax, p, as computed from the Approximate Tables IV, V, VI.

Columns 1, 4 give factors which must be multiplied respectively into the Semiduration as taken from Tables XLII–LI, and the Reduction as taken from Tables LII–LX, and the products taken as further corrections of these quantities.

When p is positive, these corrections apply to *Ingress* for the Shadow and *Egress* for the Transit of Disc; when p is negative, they apply to *Egress* for the Shadow and *Ingress* for the Transit of Disc.

SATELLITE IV

Tables of the Phenomena

LXII

Light Curves in Eclipse

$(k)_0$ \ L t	1 50	2 00 / 1 00	2 10 / 0 90	2 20 / 0 80	2 30 / 0 70	2 40 / 0 60	2 45 / 0 55	2 46 / 0 54	2 47 / 0 53	2 48 / 0 52	2 49 / 0 51	L t / $(k)_0$
	m				m							
−2 0	0 01	0 1	0 01	0 01	0 01	0 00	00	0 00	0 00	0 00	0 00	−2 0
1 8	02	0	0	0 0	0 02	0 01	0 00	0 00	0 0	0	0 00	1 8
1 6	0 4	0 04	0 04	4	0 04	0 03	0 01	0 0	0 0	0 00	0 00	1 6
1 4	0 07	0 07	0 7	0 7	0 07	0 6	0 03	0 03	0 02	0 01	0 00	1 4
1 2	1	0 1	0 1	0 1	0 1	0 10	0 08	0 07	06	0 03	01	1 2
−1 0	0 17	0 17	0 17	0 17	0 17	0 16	0 14	0 13	0 1	0 1	0 4	−1 0
0 8	0 5	5	0 5	0 25	5	4		0 1	0 0	17	0 12	0 8
0 6	0 35	0 35	35	0 35	35	0 34	0 33	0 3	0 31	0 30	0 25	0 6
0 4	0 46	0 46	46	0 46	0 46	0 46	45	0 45	0 44	0 43	0 41	0 4
−0 2	0 6	0 60	60	0 60	0 60	0 60	0 6	0 60	0 60	0 59	0 59	−0 2
0 0	0 75	75	0 75	0 75	0 75	0 75	0 75	0 75	0 75	0 75	0 75	0 0
+0 2	0 94	94	0 94	94	0 94	0 94	0 94	0 94	0 94	0 94	0 93	+0 2
0 4	1 16	1 16	1 16	1 16	1 16	1 16	1 14	1 13	1 1	1 10	1 06	0 4
0 6	1 4	1 4	1 40	1 4	1 40	1 38	1 35	1 34	1 3	1 26	1 15	0 6
0 8	1 72	1 70	1 70	1 70	1 68	1 64	1 58	1 56	1 51	1 42	1 17	0 8
+1 0	07	03	03	3	00	1 95	1 86	1 80	1 72	1 55	1 17	+1 0
1 2	48	2 42	40	2 38	36	2 29	13	03	1 90	1 66	1 10	1 2
1 4	97	86	2 84	2 8	80	2 68	39	6	2 07	1 74	0 98	1 4
1 6	3 60	3 45	3 43	3 40	3 3	3 11	2 68	50	2 25	1 79	0 83	1 6
1 8	4 31	4 1	4 08	4 05	3 91	3 60	99	2 72	2 35	1 78	0 67	1 8
+2 0	5 45	4 95	4 88	4 77	4 60	4 12	3 31	2 9	2 4	1 74	0 48	+2 0

Ili t Il gi f
y I tit i tl i
f m g it l f tl
S t Il t li i
p d itl
C di t (k) (k)
i p I tl l t tl
tl l l tl
l tit l i (k)
tl f tl
ltil l f tl
S li wl i l i
t ff l y tl i f
J pit f
th t f tl
S t llit di

LXIII

Mean Motion in Light Curve

Lat	$\Delta(l)_0$ peri	Δ^3	Lat	Lat	$\Delta(k)_0$ peri	Lat	Lat	$\Delta(k)_0$ peri	Lat
0 50	0000		2 50	0 70	0280	2 30	1 10	00441	1 90
51	64	46	2 49	72	292	2 28	1 12	445	1 88
52	91	24	2 48	74	304	2 26	1 14	449	1 86
53	111	19	2 47	76	315	2 24	1 16	453	1 84
54	1 9	16	2 46	78	3 6	2 22	1 18	457	1 82
55	143	14	2 45	80	336	2 20	1 20	460	1 80
0 56	00156	13	2 44	0 82	00345	2 18	1 22	00463	1 78
57	168	12	2 43	84	354	2 16	1 24	466	1 76
58	180	11	2 42	86	363	2 14	1 26	469	1 74
59	190	1	2 41	88	37	2 12	1 28	47	1 72
60	200	10	2 40	90	380	2 10	1 30	474	1 70
0 61	00210	10	2 39	0 92	00388	2 08	1 32	00476	1 68
62	219	9	2 38	94	395	2 06	1 34	478	1 66
63	228	9	2 37	96	40	2 04	1 36	480	1 64
64	36	8	2 36	98	408	2 02	1 38	481	1 62
65	244	8	2 35	1 00	414	2 00	1 40	48	1 60
0 66	00 5	8	2 34	1 02	0042	1 98	1 42	00483	1 58
67	259	7	2 33	1 04	4 5	1 96	1 44	484	1 56
68	266	7	2 32	1 06	43	1 94	1 46	485	1 54
69	73	7	2 31	1 08	435	1 92	1 48	485	1 52
0 70	00280	7	2 30	1 10	0 441	1 90	1 50	00486	1 50

Th T bl tl t f h g f th C d te (k) with th tim It m t b t d by th
Eq ti f T bl LXIV d th th ig tt h d i +f di pp f pp

LXIV

Equation of Motion

Lat \ Var	− 02	− 01	00	+ 01	+ 02	Var / Lat
1 50	+ 5	+ 2	0	− 2	− 5	1 50
2 00	6	3	0	3	6	1 00
2 10	6	3	0	3	6	0 90
2 20	7	3	0	3	7	0 80
2 30	8	4	0	4	8	0 70
2 40	11	5	0	5	11	0 60
2 45	+15	+ 7	0	− 7	−15	0 55
2 46	17	8	0	8	17	0 54
2 47	19	10	0	10	19	0 53
2 48	4	1	0	12	24	0 52
2 49	+34	+17	0	−17	−34	0 51

Tl Eq ti f tl i T ll t b t k rr tl t
tl t f T bl LXII Tl lt q l oooo

AUXILIARY TABLES

of

Jupiter's Orbit,

The Equation of Light,

and

Conversions to the Decimal System

C

Node of Jupiter's Orbit

Year	Ascending Node	Δ 10^y
	° ′	′
1850	98 56·1	6·1
60	99 2·2	6·1
70	8·3	6·1
80	14·4	6·2
90	20·6	6·2
1900	26·7	6·1
10	32·8	6·1
20	38·9	6·2
30	45·1	6·2
40	51·2	6·1
50	99 57·3	6·1
60	100 3·4	6·2
70	9·6	6·2
80	15·7	6·1
90	21·8	6·1
2000	100 27·9	6·1

This Table shows the longitude of the ascending Node of Jupiter's Orbit upon the mean ecliptic of date.

CI

Reduction from Ecliptic to Jupiter's Orbit

Ecliptic Longitude—Node				Reduction 1900	Δ 10′	Variation per 100^y	Ecliptic Longitude—Node			
°	°	°	°	″			°	°	°	°
0	90	180	270	0·0	·16	0·0	90	180	270	360
2	88	182	268	+ 1·9 −	·16	0·0	92	178	272	358
4	86	184	266	3·8	·16	0·0	94	176	274	356
6	84	186	264	5·6	·15	− 0·1 +	96	174	276	354
8	82	188	262	7·4	·15	0·1	98	172	278	352
10	80	190	260	9·2	·15	0·1	100	170	280	350
12	78	192	258	11·0	·14	0·1	102	168	282	348
14	76	194	256	12·6	·14	0·1	104	166	284	346
16	74	196	254	14·3	·13	0·1	106	164	286	344
18	72	198	252	15·8	·13	0·1	108	162	288	342
20	70	200	250	17·3	·12	0·2	110	160	290	340
22	68	202	248	18·7	·11	0·2	112	158	292	338
24	66	204	246	20·0	·11	0·2	114	156	294	336
26	64	206	244	21·2	·10	0·2	116	154	296	334
28	62	208	242	22·3	·09	0·2	118	152	298	332
30	60	210	240	23·3	·08	0·2	120	150	300	330
32	58	212	238	24·2	·07	0·2	122	148	302	328
34	56	214	236	25·0	·06	0·2	124	146	304	326
36	54	216	234	25·6	·05	0·2	126	144	306	324
38	52	218	232	26·1	·04	0·2	128	142	308	322
40	50	220	230	26·5	·03	0·2	130	140	310	320
42	48	222	228	26·8	·02	0·2	132	138	312	318
44	46	224	226	+ 26·9 −	·01	− 0·2 +	134	136	314	316

This Equation to be applied to Ecliptic Longitude of Jupiter to give Orbit Longitude.
The Argument is the *Ecliptic Longitude* minus *Longitude of Node* from Table C.
The sign follows the side on which the Argument is found.

Reduction of Annual Parallax to Jupiter's Orbit

CII

β	Factor	Δ 1^d	β	Factor	Δ 1^d
d			d		
0	+ ·235	0,0	200	− ·163	0,0
10	·230	− 0,9	210	·161	+ 0,3
20	·217	1,8	220	·157	0,6
30	·193	2,7	230	·150	0,8
40	·164	3,1	240	·141	1,0
50	·131	3,5	250	·130	1,3
60	·094	3,6	260	·116	1,5
70	·059	3,5	270	·100	1,7
80	+ ·024	3,4	280	·082	2,1
90	− ·008	3,2	290	·059	2,5
100	·037	2,7	300	·033	2,8
110	·062	2,3	310	− ·004	3,1
120	·083	2,0	320	+ ·028	3,3
130	·102	1,8	330	·062	3,6
140	·118	1,5	340	·099	3,6
150	·131	1,2	350	·134	3,4
160	·142	1,0	360	·167	3,1
170	·151	0,8	370	·195	2,6
180	·158	0,6	380	·218	1,8
190	·162	− 0,3	390	·231	+ 0,9
200	− ·163	0,0	400	+ ·235	0,0

CIII

p	Correction	p	Correction
°	″	°	″
0	0·0	± 6	∓ 5·6
± 1	∓ 0·9	7	6·5
2	1·8	8	7·4
3	2·8	9	8·4
4	3·7	10	9·3
5	4·6	11	10·3
± 6	∓ 5·6	± 12	∓ 11·3

Tables CII, CIII apply when the Annual Parallax has been computed from the *ecliptic longitudes* of Jupiter and the Sun, and supply corrections for reducing it to Jupiter's Orbit.

Table CII: take out the factor with Argument β, multiply it into the sum of the two equations taken out from Table CI with the arguments respectively :—*Sun's Longitude* minus *Jupiter's Ascending Node*, *Jupiter's Longitude* minus *Ascending Node*, and add the product to the computed Annual Parallax.

Table CIII: take out the correction with argument *p*, the Annual Parallax, and apply it to the computed value of *p*.

CIV

The Equation of Light

Log Dist	Equation	Δ (3)
585	0 2193	+ 51
6	244	51
7	95	5
8	347	5
9	398	5
590	45	5
591	0 5 1	+ 5
2	553	5
3	605	52
4	657	53
5	710	53
596	02276	+ 52
7	814	53
8	867	53
9	92	53
600	973	53
601	3026	+ 53
2	0 9	53
3	13	53
4	185	54
5	39	54
606	023 9	+ 54
7	346	54
8	400	54
9	454	54
610	5 8	54
611	0 3562	+ 54
2	616	55
3	671	55
4	7 5	55
5	78	55
616	023835	+ 55
7	890	55
8	945	55
9	0 40 0	55
620	055	56
621	0 4111	+ 56
2	166	56
3	2	56
4	78	56
5	334	56
626	024390	+ 56
7	446	56
8	502	57
9	559	57
630	616	57
631	02467	+ 57
2	7 9	57
3	786	57
4	843	58
635	024901	+ 58

Log Dist	Equation	Δ (3)
635	0 0 49 1	+ 58
6	958	58
7	025 16	58
8	073	58
9	131	58
640	189	58
641	025 47	+ 58
2	305	5)
3	364	59
4	422	59
5	481	59
646	025539	+ 59
7	598	59
8	657	59
9	716	60
650	776	60
651	0 5835	+ 60
2	895	60
3	954	6
4	0 6014	60
5	74	60
656	026134	+ 60
7	194	61
8	55	61
9	315	61
660	376	61
661	026437	+ 61
2	498	61
3	559	61
4	620	61
5	681	6
666	0 6743	+ 6
7	805	62
8	866	6
9	9 8	6
670	990	63
671	0 7 53	+ 63
2	115	63
3	178	63
4	4	63
5	303	63
676	027366	+ 63
7	4 9	63
8	492	64
9	556	64
680	619	64
681	0 7683	+ 64
2	747	64
3	810	64
4	875	65
685	027939	+ 64

Log Dist	Equation	Δ (3)
685	0 27939	+ 64
6	028003	65
7	068	65
8	133	65
9	197	65
690	26	66
691	83 8	+ 66
2	393	65
3	458	66
4	5 4	66
5	590	66
696	028656	+ 66
7	72	66
8	788	66
9	854	67
700	9 1	67
701	0 8987	+ 67
2	029054	67
3	1 1	67
4	188	68
5	256	68
706	0 93 3	+ 68
7	39	68
8	458	68
9	5 6	68
710	594	69
711	0 9663	+ 69
2	731	69
3	800	69
4	868	69
5	937	69
716	030006	+ 69
7	075	70
8	145	70
9	214	70
720	84	70
721	30354	+ 7
2	4 4	7
3	494	70
4	564	70
5	634	71
726	030705	+ 71
7	776	71
8	847	71
9	918	71
730	989	72
731	031061	+ 72
2	13	72
3	04	7
4	76	72
735	031348	+ 7

Log Dist	Equation	Δ (3)
735	0 031348	+ 72
6	4	73
7	493	73
8	565	73
9	638	73
740	711	73
741	031784	+ 73
2	857	74
3	931	74
4	03 004	74
5	078	74
746	03 15	+ 74
7	6	75
8	301	75
9	375	75
750	450	75
751	03 5 4	+ 75
2	599	76
3	675	76
4	750	75
5	8 5	76
756	032901	+ 76
7	977	76
8	033053	76
9	1 9	76
760	05	77
761	033 8	+ 77
2	359	77
3	436	77
4	513	77
5	590	77
766	033667	+ 78
7	745	78
8	823	78
9	901	78
770	979	78
771	034057	+ 79
2	136	79
3	214	79
4	293	79
5	37	8
776	03445	+ 80
7	531	80
8	611	80
9	690	80
780	770	8
781	034851	+ 81
2	931	80
3	035011	81
4	092	81
785	035173	+ 81

Log Dist	Equation	Δ (3)
785	0 035173	+ 81
6	54	81
7	335	82
8	417	82
9	498	82
790	580	82
791	03566	+ 83
2	745	83
3	827	83
4	910	83
5	992	83
796	036075	+ 83
7	158	84
8	242	84
9	3 5	84
800	409	84
801	036493	+ 84
2	577	84
3	661	85
4	746	85
5	831	85
806	036916	+ 85
7	037001	85
8	086	85
9	171	86
810	257	86
811	037343	+ 86
2	429	86
3	515	87
4	602	87
5	689	87
816	037775	+ 87
7	863	88
8	950	87
9	038037	88
820	0381 5	+ 88

CV

Correction of the Equation

β	Equation	β
		d
0	0	400
50	+ 2 −	350
100	3	300
150	+ 2 −	250
200	0	200

CVI Minutes and Seconds of Arc in Decimals of a Degree

1	2	1	2
′	°	′	°
1	·01667	**51**	·85000
2	·03333	**52**	·86667
3	·05000	**53**	·88333
4	·06667	**54**	·90000
5	·08333	**55**	·91667
6	·10000	**56**	·93333
7	·11667	**57**	·95000
8	·13333	**58**	·96667
9	·15000	**59**	·98333
10	·16667	**60**	1·00000
11	·18333	**61**	1·01667
12	·20000	**62**	1·03333
13	·21667	**63**	1·05000
14	·23333	**64**	1·06667
15	·25000	**65**	1·08333
16	·26667	**66**	1·10000
17	·28333	**67**	1·11667
18	·30000	**68**	1·13333
19	·31667	**69**	1·15000
20	·33333	**70**	1·16667
21	·35000	**71**	1·18333
22	·36667	**72**	1·20000
23	·38333	**73**	1·21667
24	·40000	**74**	1·23333
25	·41667	**75**	1·25000
26	·43333	**76**	1·26667
27	·45000	**77**	1·28333
28	·46667	**78**	1·30000
29	·48333	**79**	1·31667
30	·50000	**80**	1·33333
31	·51667	**81**	1·35000
32	·53333	**82**	1·36667
33	·55000	**83**	1·38333
34	·56667	**84**	1·40000
35	·58333	**85**	1·41667
36	·60000	**86**	1·43333
37	·61667	**87**	1·45000
38	·63333	**88**	1·46667
39	·65000	**89**	1·48333
40	·66667	**90**	1·50000
41	·68333	**91**	1·51667
42	·70000	**92**	1·53333
43	·71667	**93**	1 55000
44	·73333	**94**	1·56667
45	·75000	**95**	1·58333
46	·76667	**96**	1·60000
47	·78333	**97**	1·61667
48	·80000	**98**	1·63333
49	·81667	**99**	1·65000
50	·83333	**100**	1·66667

1	2	1	2
″	°	″	°
1	·00028	**51**	·01417
2	56	**52**	1444
3	83	**53**	1472
4	111	**54**	1500
5	139	**55**	1528
6	·00167	**56**	·01556
7	194	**57**	1583
8	222	**58**	1611
9	250	**59**	1639
10	278	**60**	1667
11	·00306	**61**	·01694
12	333	**62**	1722
13	361	**63**	1750
14	389	**64**	1778
15	417	**65**	1806
16	·00444	**66**	·01833
17	472	**67**	1861
18	500	**68**	1889
19	528	**69**	1917
20	556	**70**	1944
21	·00583	**71**	·01972
22	611	**72**	2000
23	639	**73**	2028
24	667	**74**	2056
25	694	**75**	2083
26	·00722	**76**	·02111
27	750	**77**	2139
28	778	**78**	2167
29	806	**79**	2194
30	833	**80**	2222
31	·00861	**81**	·02250
32	889	**82**	2278
33	917	**83**	2306
34	944	**84**	2333
35	972	**85**	2361
36	·01000	**86**	·02389
37	1028	**87**	2417
38	1056	**88**	2444
39	1083	**89**	2472
40	1111	**90**	2500
41	·01139	**91**	·02528
42	1167	**92**	2556
43	1194	**93**	2583
44	1222	**94**	2611
45	1250	**95**	2639
46	·01278	**96**	·02667
47	1306	**97**	2694
48	1333	**98**	2722
49	1361	**99**	2750
50	·01389	**100**	·02778

CVII

Decimals of a Degree in Minutes and Seconds of Arc

01	0 36	51	30 36
02	1 1	52	31 1
03	1 48	53	31 48
04	2 24	54	32 4
05	3	55	33
06	3 36	56	33 36
07	4 1	57	34 12
08	4 48	58	34 48
09	5 24	59	35 4
10	6 0	60	36 0
11	6 36	61	36 36
12	7 1	62	37 12
13	7 48	63	37 48
14	8 4	64	38 4
15	9 0	65	39
16	9 36	66	39 36
17	10 1	67	40 12
18	10 48	68	40 48
19	11 4	69	41 24
20	12 0	70	42 0
21	12 36	71	42 36
22	13 1	72	43 12
23	13 48	73	43 48
24	14 4	74	44 4
25	15 0	75	45 0
26	15 36	76	45 36
27	16 1	77	46 1
28	16 48	78	46 48
29	17 4	79	47 24
30	18 0	80	48 0
31	18 36	81	48 36
32	19 1	82	49 1
33	19 48	83	49 48
34	0 4	84	50 4
35	1 0	85	51
36	1 36	86	51 36
37	1	87	5 1
38	2 48	88	52 48
39	3 4	89	53 4
40	24 0	90	54 0
41	4 36	91	54 36
42	5 1	92	55 1
43	5 48	93	55 48
44	6 4	94	56 4
45	7 0	95	57 0
46	27 36	96	57 36
47	2b 1	97	58 12
48	8 48	98	58 48
49	29 4	99	59 4
50	3 0	1 00	60 0

0001	0 36	0051	18 36
2	0 7	52	18 7
3	1 08	53	19 08
4	1 44	54	19 44
5	1 8	55	19 80
0006	16	0056	20 16
7	2 5	57	20 5
8	88	58	20 88
9	3 4	59	1 4
10	3 6	60	21 60
0011	3 96	0061	21 96
12	4 3	62	32
13	4 68	63	22 68
14	5 04	64	23 04
15	5 40	65	23 40
0016	5 76	0066	23 76
17	6 1	67	24 12
18	6 48	68	4 48
19	6 84	69	24 84
20	7 20	70	25 20
0021	7 56	0071	25 56
22	7 9	72	25 92
23	8 28	73	26 8
24	8 64	74	26 64
25	9 00	75	7 00
0026	9 36	0076	27 36
27	9 72	77	7 7
28	10 08	78	28 08
29	1 44	79	28 44
30	10 80	80	8 80
0031	11 16	0081	29 16
32	11 52	82	29 52
33	11 88	83	29 88
34	12 4	84	30 24
35	12 60	85	30 60
0036	1 96	0086	30 96
37	13 32	87	31 32
38	13 68	88	31 68
39	14 04	89	3 04
40	14 40	90	3 40
0041	14 76	0091	32 76
42	15 12	92	33 12
43	15 48	93	33 48
44	15 84	94	33 84
45	16 20	95	34
0046	16 56	0096	34 56
47	16 92	97	34 92
48	17 8	98	35 8
49	17 64	99	35 64
0050	18 0	0100	36 00

CVIII Decimals of a Day in Hours, Minutes and Seconds.

1	2	1	2
Days	H., M., S.	Days	H., M., S.
d	h m s	d	h m s
0·01	0 14 24·00	0·51	12 14 24·00
·02	0 28 48·00	·52	12 28 48·00
·03	0 43 12·00	·53	12 43 12·00
·04	0 57 36·00	·54	12 57 36·00
·05	1 12 0·00	·55	13 12 0·00
0·06	1 26 24·00	0·56	13 26 24·00
·07	1 40 48·00	57	13 40 48·00
·08	1 55 12·00	·58	13 55 12·00
·09	2 9 36·00	·59	14 9 36·00
·10	2 24 0·00	·60	14 24 0·00
0·11	2 38 24·00	0·61	14 38 24·00
·12	2 52 48·00	·62	14 52 48·00
·13	3 7 12·00	·63	15 7 12·00
·14	3 21 36·00	·64	15 21 36·00
·15	3 36 0·00	·65	15 36 0·00
0·16	3 50 24·00	0·66	15 50 24·00
·17	4 4 48·00	·67	16 4 48·00
·18	4 19 12·00	·68	16 19 12·00
·19	4 33 36·00	·69	16 33 36·00
·20	4 48 0·00	·70	16 48 0·00
0·21	5 2 24·00	0·71	17 2 24·00
·22	5 16 48·00	·72	17 16 48·00
·23	5 31 12·00	·73	17 31 12·00
·24	5 45 36·00	·74	17 45 36·00
·25	6 0 0·00	·75	18 0 0·00
0·26	6 14 24·00	0·76	18 14 24·00
·27	6 28 48·00	·77	18 28 48·00
·28	6 43 12·00	·78	18 43 12·00
·29	6 57 36·00	·79	18 57 36·00
·30	7 12 0·00	·80	19 12 0·00
0·31	7 26 24·00	0·81	19 26 24·00
·32	7 40 48·00	·82	19 40 48·00
·33	7 55 12·00	·83	19 55 12·00
·34	8 9 36·00	·84	20 9 36·00
·35	8 24 0·00	·85	20 24 0·00
0·36	8 38 24·00	0·86	20 38 24·00
·37	8 52 48·00	·87	20 52 48·00
·38	9 7 12·00	·88	21 7 12·00
·39	9 21 36·00	·89	21 21 36·00
·40	9 36 0·00	·90	21 36 0·00
0·41	9 50 24·00	0·91	21 50 24·00
·42	10 4 48·00	·92	22 4 48·00
·43	10 19 12·00	·93	22 19 12·00
·44	10 33 36·00	·94	22 33 36·00
·45	10 48 0·00	·95	22 48 0·00
0·46	11 2 24·00	0·96	23 2 24·00
·47	11 16 48·00	·97	23 16 48·00
·48	11 31 12·00	·98	23 31 12·00
·49	11 45 36·00	·99	23 45 36·00
·50	12 0 0·00	1·00	24 0 0·00

1	2	1	2
Days	Min., Sec.	Days	Min., Sec.
d	m s	d	m s
·0001	0 8·64	·0051	7 20·64
2	0 17·28	52	7 29·28
3	0 25·92	53	7 37·92
4	0 34·56	54	7 46·56
5	0 43·20	55	7 55·20
·0006	0 51·84	·0056	8 3·84
7	1 0·48	57	8 12·48
8	1 9·12	58	8 21·12
9	1 17·76	59	8 29·76
10	1 26·40	60	8 38·40
·0011	1 35·04	·0061	8 47·04
12	1 43·68	62	8 55·68
13	1 52·32	63	9 4·32
14	2 0·96	64	9 12·96
15	2 9·60	65	9 21·60
·0016	2 18·24	·0066	9 30·24
17	2 26·88	67	9 38·88
18	2 35·52	68	9 47·52
19	2 44·16	69	9 56·16
20	2 52·80	70	10 4·80
·0021	3 1·44	·0071	10 13·44
22	3 10·08	72	10 22·08
23	3 18·72	73	10 30·72
24	3 27·36	74	10 39·36
25	3 36·00	75	10 48·00
·0026	3 44·64	·0076	10 56·64
27	3 53·28	77	11 5·28
28	4 1·92	78	11 13·92
29	4 10·56	79	11 22·56
30	4 19·20	80	11 31·20
·0031	4 27·84	·0081	11 39·84
32	4 36·48	82	11 48·48
33	4 45·12	83	11 57·12
34	4 53·76	84	12 5·76
35	5 2·40	85	12 14·40
·0036	5 11·04	·0086	12 23·04
37	5 19·68	87	12 31·68
38	5 28·32	88	12 40·32
39	5 36·96	89	12 48·96
40	5 45·60	90	12 57·60
·0041	5 54·24	·0091	13 6·24
42	6 2·88	92	13 14·88
43	6 11·52	93	13 23·52
44	6 20·16	94	13 32·16
45	6 28·80	95	13 40·80
·0046	6 37·44	·0096	13 49·44
47	6 46·08	97	13 58·08
48	6 54·72	98	14 6·72
49	7 3·36	99	14 15·36
·0050	7 12·00	·0100	14 24·00

1	2	1	2
Days	Sec.	Days	Sec.
d	s	d	s
·000001	0·09	·000051	4·41
2	0·17	52	4·49
3	0·26	53	4·58
4	0·35	54	4·67
5	0·43	55	4·75
·000006	0·52	·000056	4·84
7	0·61	57	4·93
8	0·69	58	5·01
9	0·78	59	5·10
10	0·86	60	5·18
·000011	0·95	·000061	5·27
12	1·04	62	5·36
13	1·12	63	5·44
14	1·21	64	5·53
15	1·30	65	5·62
·000016	1·38	·000066	5·70
17	1·47	67	5·79
18	1·56	68	5·88
19	1·64	69	5·96
20	1·73	70	6·05
·000021	1·81	·000071	6·13
22	1·90	72	6·22
23	1·99	73	6·31
24	2·07	74	6·39
25	2·16	75	6·48
·000026	2·25	·000076	6·57
27	2·33	77	6·65
28	2·42	78	6·74
29	2·51	79	6·83
30	2·59	80	6·91
·000031	2·68	·000081	7·00
32	2·77	82	7·09
33	2·85	83	7·17
34	2·94	84	7·26
35	3·02	85	7·34
·000036	3·11	·000086	7·43
37	3·20	87	7·52
38	3·28	88	7·60
39	3·37	89	7·69
40	3·46	90	7·78
·000041	3·54	·000091	7·86
42	3·63	92	7·95
43	3·72	93	8·04
44	3·80	94	8·12
45	3·89	95	8·21
·000046	3·97	·000096	8·29
47	4·06	97	8·38
48	4·15	98	8·47
49	4·23	99	8·55
·000050	4·32	·000100	8·64

CIX

Hours, Minutes and Seconds in Decimals of a Day

Hours	Days	Hours	Days
0	00 000	50	083333
1	41667	51	1 5 0
2	083333	52	166667
3	1250	53	8333
4	166667	54	25 00
5	08333	55	91667
6	50000	56	333333
7	9 667	57	37500
8	333333	58	416667
9	375000	59	458333
10	4 6667	60	2 5 00 0
11	458333	61	541667
12	5 0000	62	2 583333
13	541667	63	625 00
14	583333	64	666667
15	6 5000	65	2 708333
16	666667	66	2 750000
17	7 8333	67	2 791667
18	75 000	68	833333
19	791667	69	875 0
20	833333	70	916667
21	8750 0	71	958333
22	916667	72	3 000 00
23	958333	73	3 041667
24	1 0 00	74	3 83333
25	1 41667	75	3 1 5
26	1 83333	76	3 166667
27	1 1 50	77	3 8333
28	1 166667	78	3 500
29	1 8333	79	3 91667
30	1 5 0	80	3 333333
31	1 91667	81	3 375 0
32	1 333333	82	3 416667
33	1 3750	83	3 458333
34	416667	84	3 500000
35	1 458333	85	3 54166
36	1 5 0	86	3 583333
37	1 54 667	87	3 6 5
38	1 583333	88	3 666667
39	1 6 500	89	3 7 8333
40	1 666667	90	3 75000
41	1 7 8333	91	3 791667
42	1 75 0	92	3 833333
43	1 791667	93	3 8750 0
44	1 833333	94	3 916667
45	1 875 0	95	3 958333
46	1 916667	96	4 000 0
47	1 958333	97	4 41667
48	00 0	98	4 083333
49	4 667	99	4 1 5 0
50	83333	100	4 166667

Min	Days	Min	Days
0	0 0 00	50	d 34722
1	694	51	35417
2	1389	52	36111
3	83	53	36806
4	778	54	37500
5	347	55	38194
6	004167	56	38889
7	4861	57	39583
8	5556	58	40 78
9	6 50	59	4097
10	6944	60	41667
11	007639	61	04 361
12	8333	62	43056
13	90 8	63	43750
14	97 2	64	44444
15	1 417	65	45139
16	011111	66	045833
17	11806	67	465 8
18	1 500	68	47 22
19	13194	69	47917
20	13889	70	48611
21	014583	71	049306
22	15 76	72	500 0
23	1597	73	50694
24	16667	74	51389
25	17361	75	5 83
26	018 56	76	05 778
27	1875	77	5347
28	19444	78	54167
29	0139	79	54861
30	0833	80	55556
31	0 15 8	81	056 50
32		82	56944
33	2917	83	57639
34	23611	84	58333
35	43 6	85	59028
36	250 0	86	0597
37	5694	87	60417
38	6389	88	61111
39	7 83	89	61806
40	7778	90	62500
41	0 847	91	63194
42	9167	92	63889
43	9861	93	64583
44	3 556	94	65 78
45	31 50	95	6597
46	31944	96	066667
47	3 639	97	67361
48	33333	98	68056
49	34 28	99	6875
50	0347	100	069444

Sec	Days	Sec	Days
0	d 0 00 0	50	000579
1	12	51	590
2	23	52	60
3	35	53	613
4	46	54	625
5	58	55	637
6	000069	56	000648
7	81	57	660
8	93	58	671
9	104	59	683
10	116	60	694
11	0001 7	61	000706
12	139	62	718
13	150	63	729
14	162	64	741
15	174	65	752
16	000185	66	000764
17	197	67	775
18	208	68	787
19	0	69	799
20	231	70	810
21	000243	71	000822
22	255	72	833
23	66	73	845
24	78	74	856
25	8[illegible]	75	868
26	000301	76	000880
27	31	77	891
28	324	78	903
29	336	79	914
30	347	80	926
31	000359	81	000937
32	370	82	949
33	38	83	961
34	394	84	972
35	405	85	984
36	000417	86	000995
37	4 8	87	1007
38	440	88	1019
39	451	89	1030
40	463	90	1042
41	00475	91	001053
42	486	92	1065
43	498	93	1076
44	5 9	94	1088
45	521	95	1100
46	000532	96	001111
47	544	97	1123
48	556	98	1134
49	567	99	1146
50	000579	100	001157

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